TOSETO 99T07260

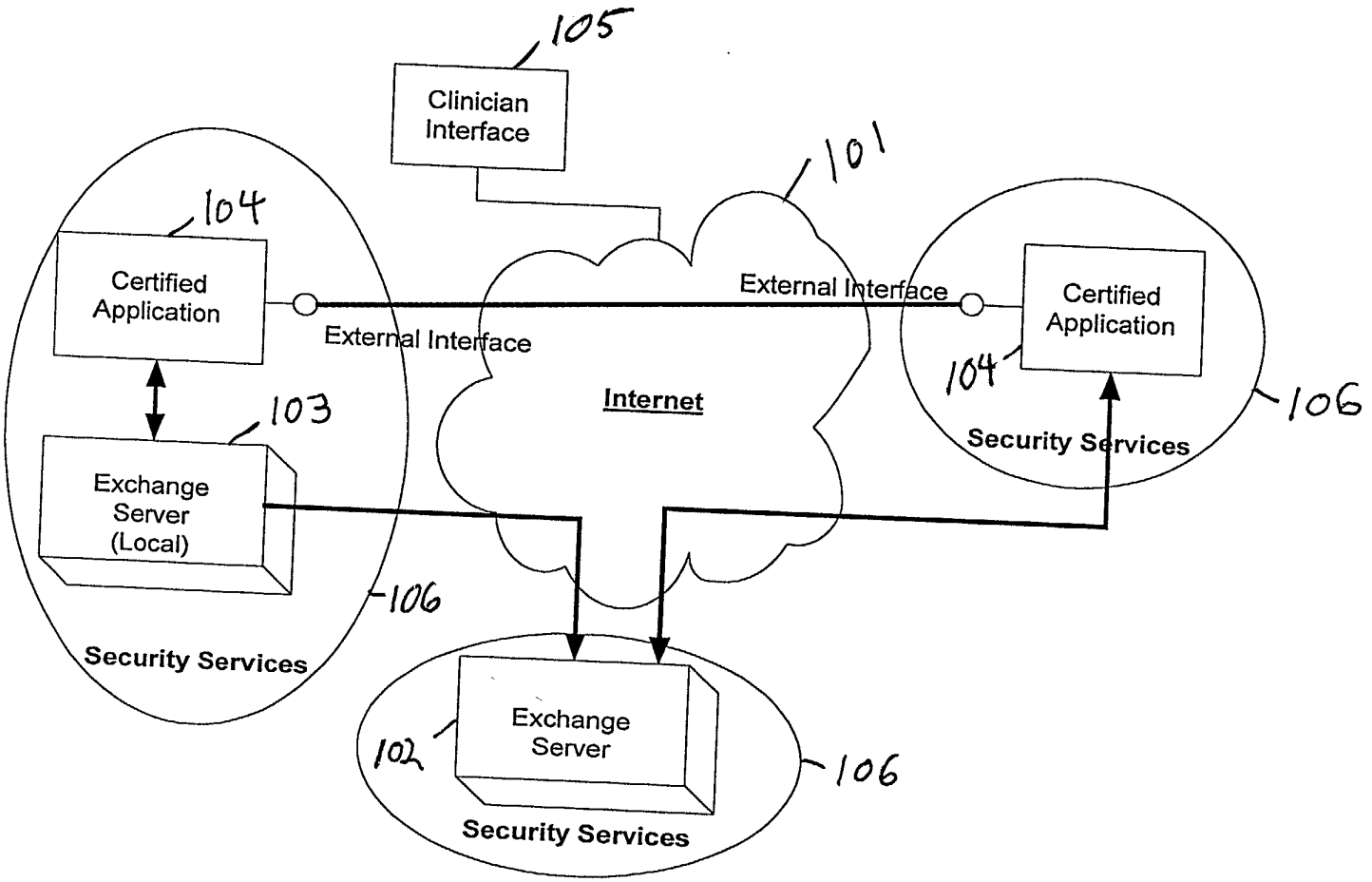

FIG. 1

01915t-20
1/46

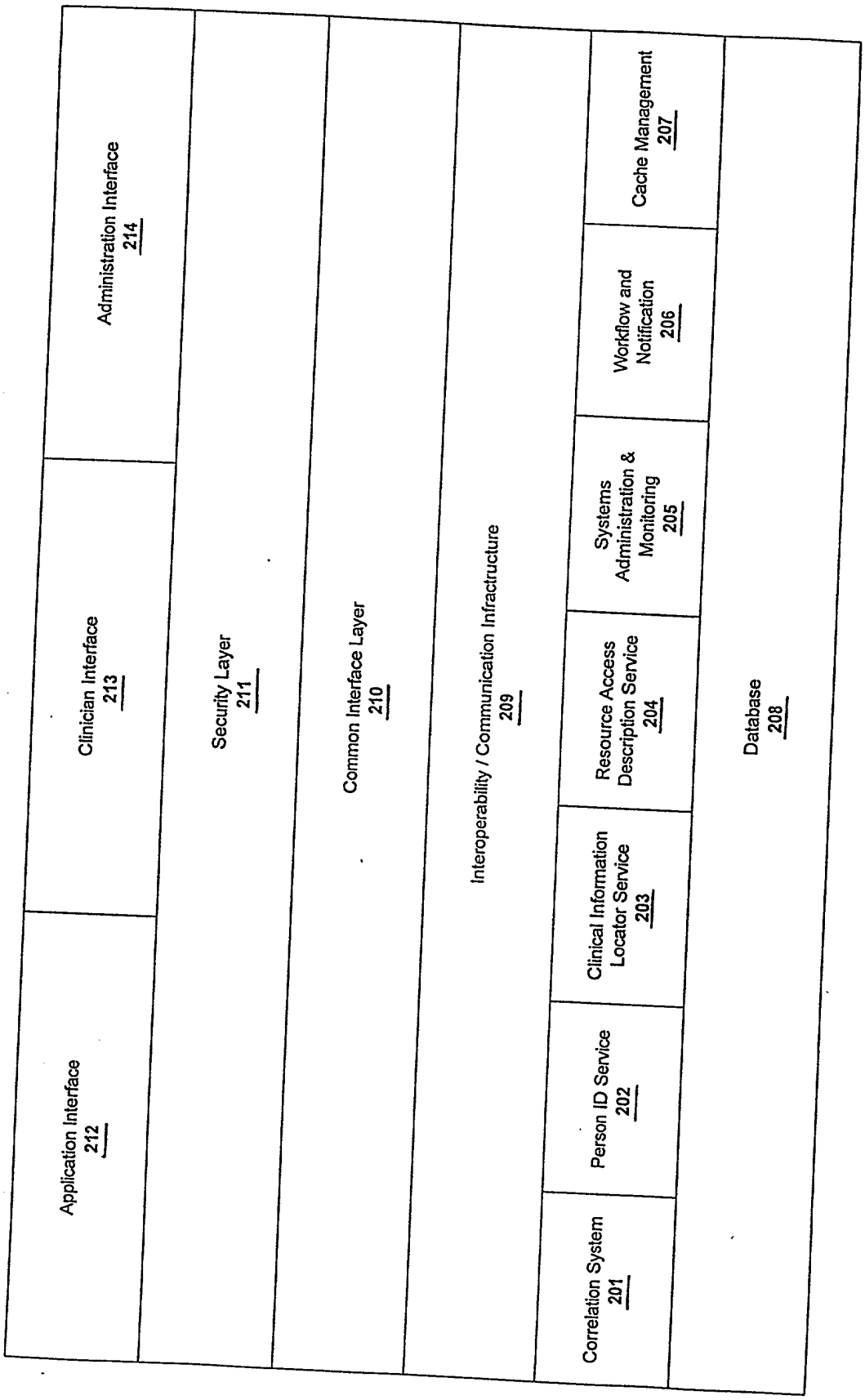
Application Interface
212
Clinician Interface
213
Administration Interface
214
Security Layer
211
Common Interface Layer
210
Interoperability / Communication Infractructure
209
Correlation System
201
Person ID Service
202
Clinical Information Locator Service
203
Resource Access Description Service
204
Systems Administration & Monitoring
205
Workflow and Notification
206
Cache Management
207
Database
208

FIG. 2

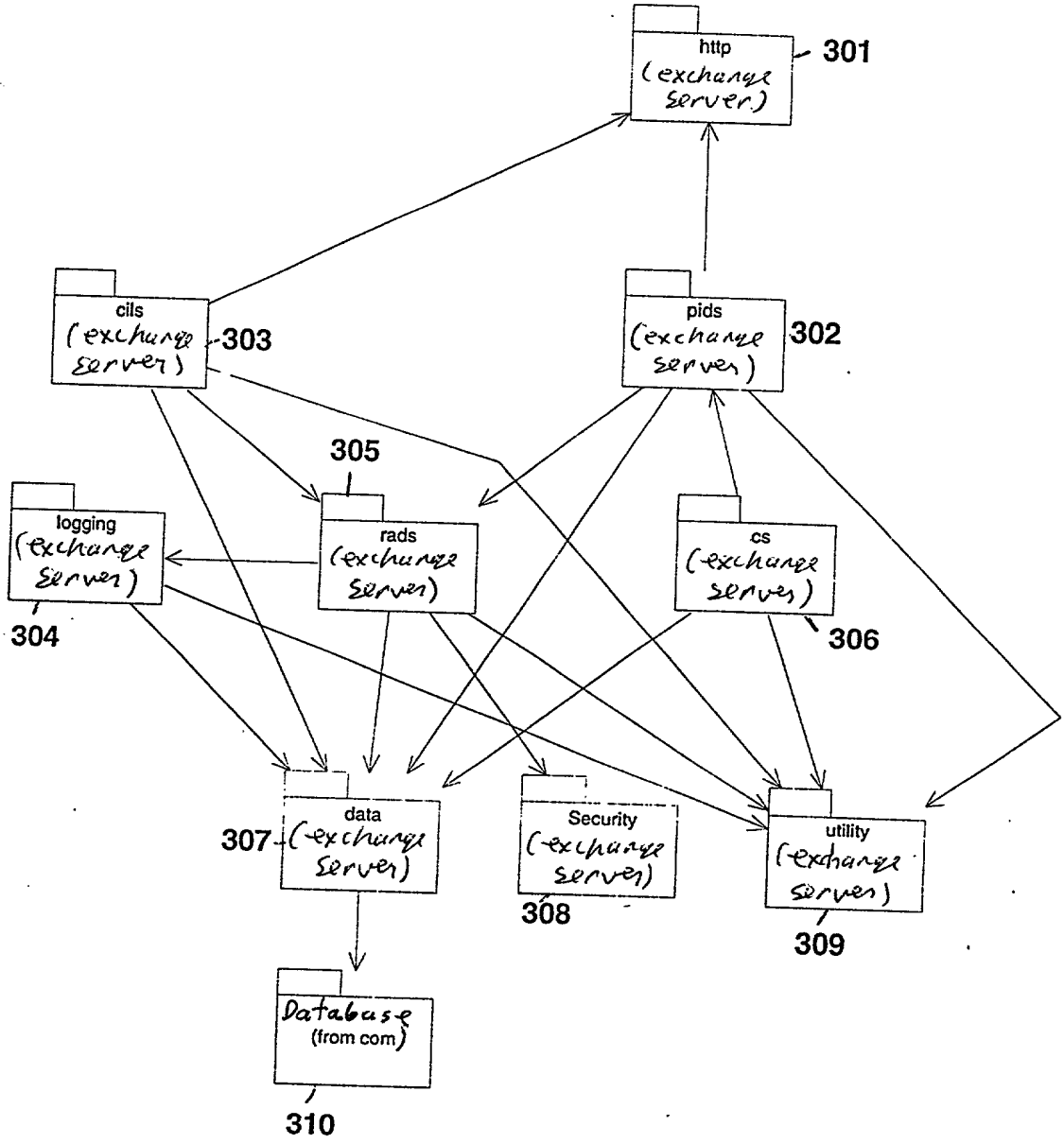
http
(exchange server)
301
cils
(exchange server)
303
pids
(exchange server)
302
305
logging
(exchange server)
304
rads
(exchange server)
cs
(exchange server)
306
data
(exchange server)
307
Security
(exchange server)
308
utility
(exchange server)
309
Database
(from com)
310

FIG. 3

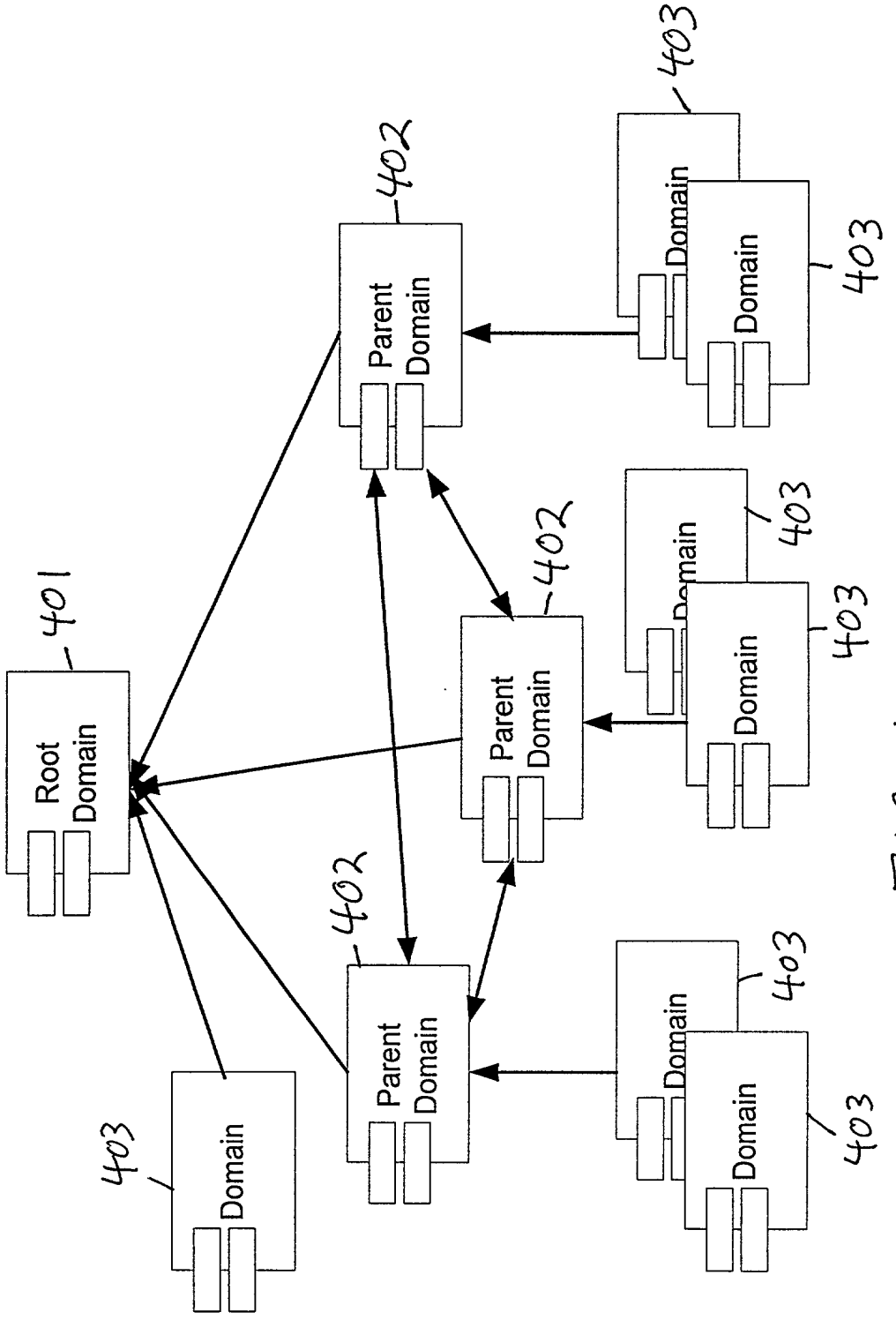

FIG. 4

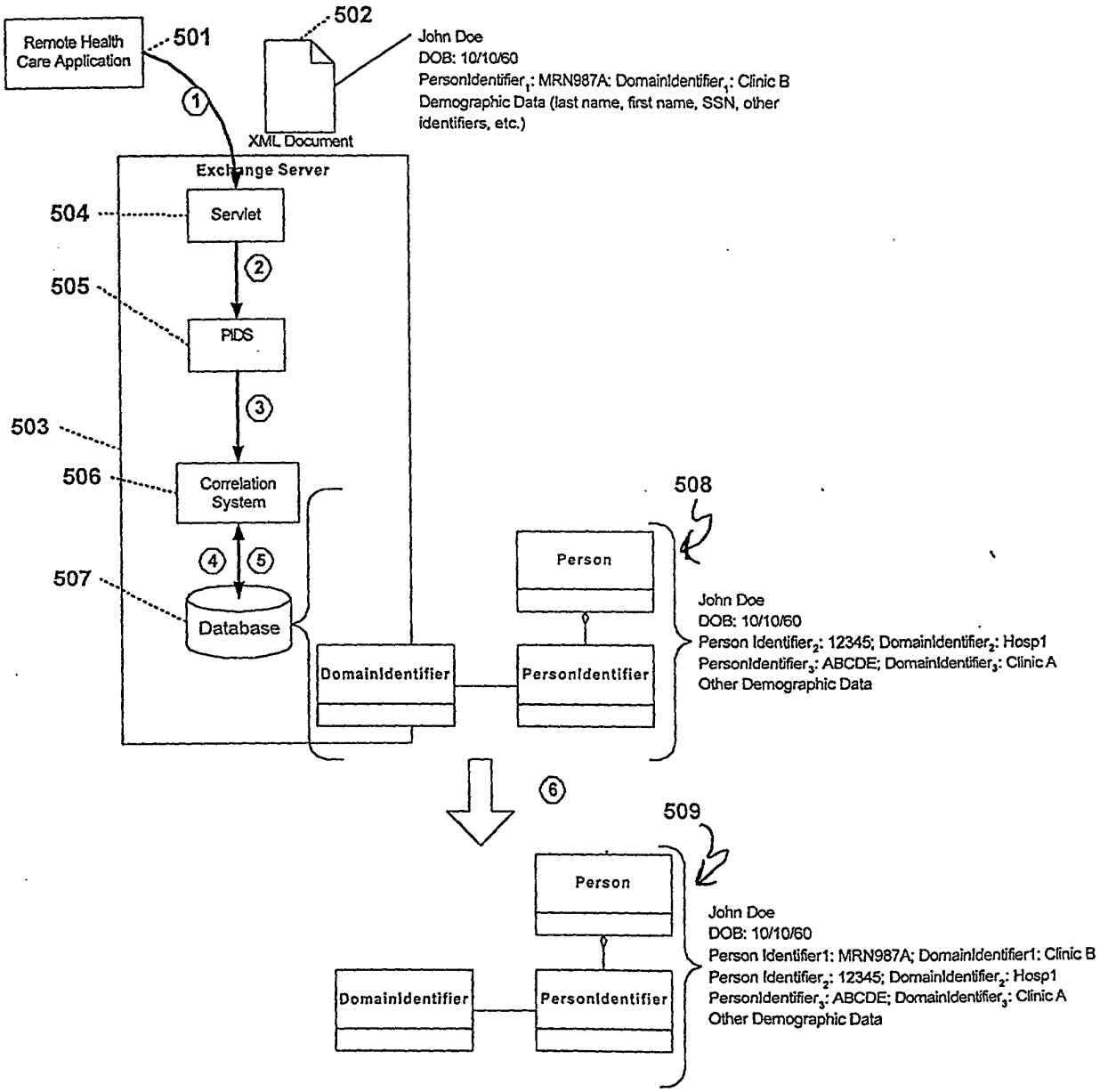
Remote Health Care Application
501
502
John Doe
DOB: 10/10/60
PersonIdentifier1: MRN987A: DomainIdentifier1: Clinic B
Demographic Data (last name, first name, SSN, other identifiers, etc.)
XML Document
1
Exchange Server
504
Servlet
2
505
PIDS
3
503
506
Correlation System
4
5
507
Database
DomainIdentifier
PersonIdentifier
Person
508
John Doe
DOB: 10/10/60
Person Identifier2: 12345; DomainIdentifier2: Hosp1
PersonIdentifier3: ABCDE; DomainIdentifier3: Clinic A
Other Demographic Data
6
509
Person
DomainIdentifier
PersonIdentifier
John Doe
DOB: 10/10/60
Person Identifier1: MRN987A; DomainIdentifier1: Clinic B
Person Identifier2: 12345; DomainIdentifier2: Hosp1
PersonIdentifier3: ABCDE; DomainIdentifier3: Clinic A
Other Demographic Data

FIG. 5

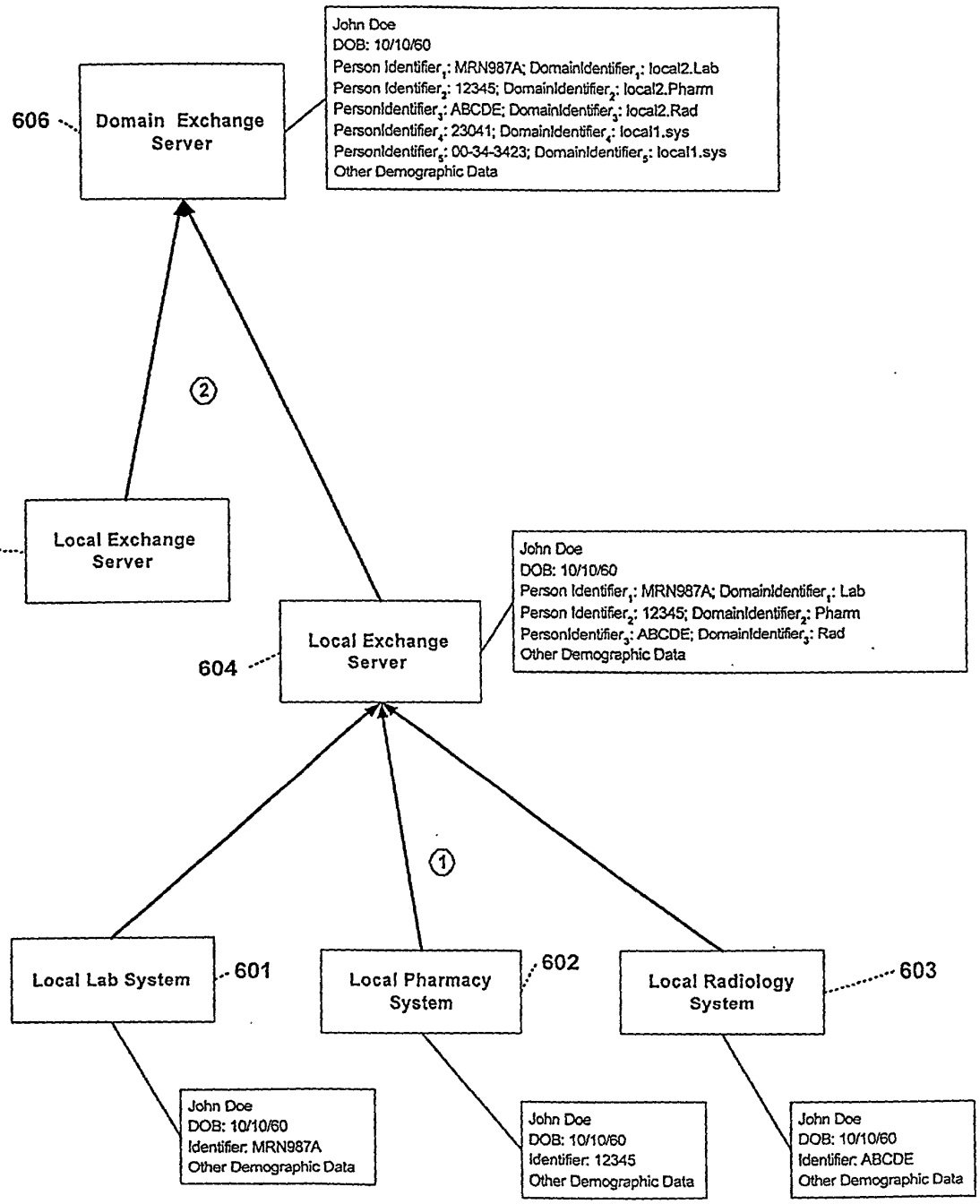
606
Domain Exchange Server
John Doe
DOB: 10/10/60
Person Identifier1: MRN987A; DomainIdentifier1: local2.Lab
Person Identifier2: 12345; DomainIdentifier2: local2.Pharm
PersonIdentifier3: ABCDE; DomainIdentifier3: local2.Rad
PersonIdentifier4: 23041; DomainIdentifier4: local1.sys
PersonIdentifier5: 00-34-3423; DomainIdentifier5: local1.sys
Other Demographic Data
2
605
Local Exchange Server
604
Local Exchange Server
John Doe
DOB: 10/10/60
Person Identifier1: MRN987A; DomainIdentifier1: Lab
Person Identifier2: 12345; DomainIdentifier2: Pharm
PersonIdentifier3: ABCDE; DomainIdentifier3: Rad
Other Demographic Data
1
Local Lab System
601
Local Pharmacy System
602
Local Radiology System
603
John Doe
DOB: 10/10/60
Identifier: MRN987A
Other Demographic Data
John Doe
DOB: 10/10/60
Identifier: 12345
Other Demographic Data
John Doe
DOB: 10/10/60
Identifier: ABCDE
Other Demographic Data

FIG. 6

EP 0992260

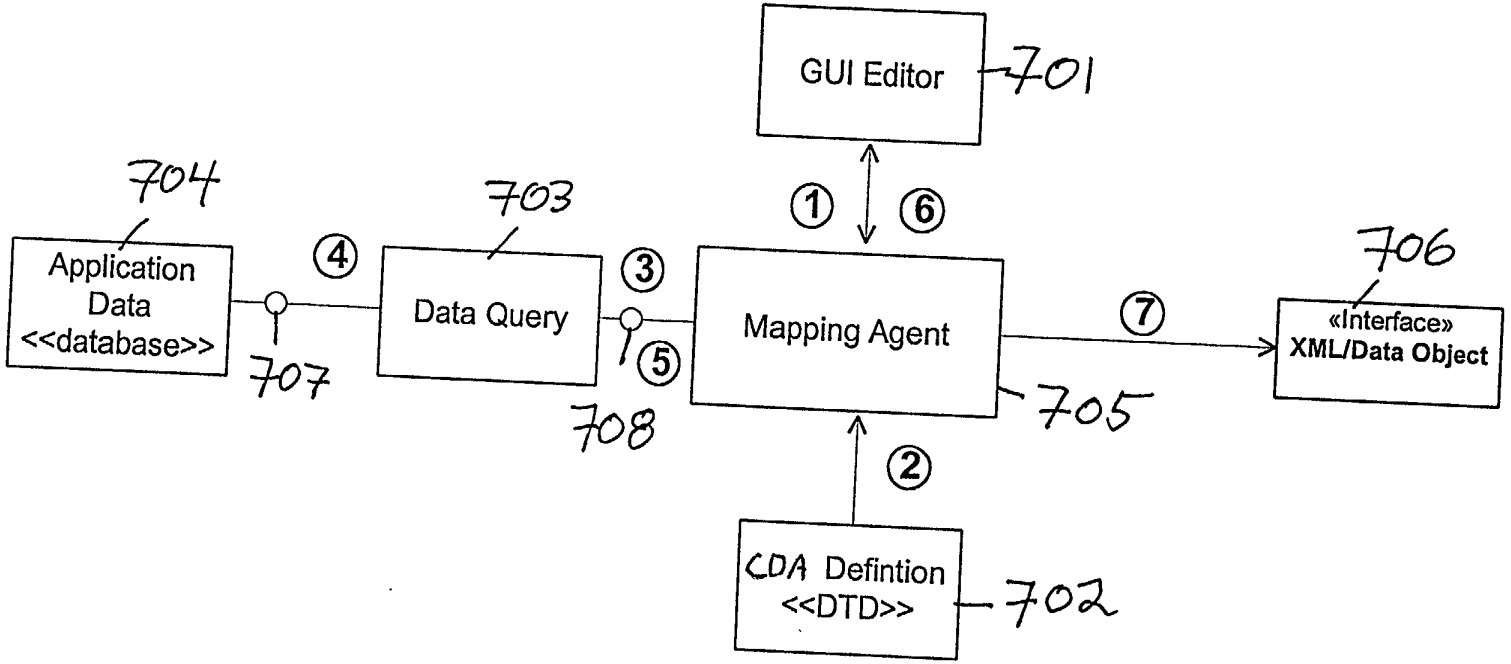

FIG. 7

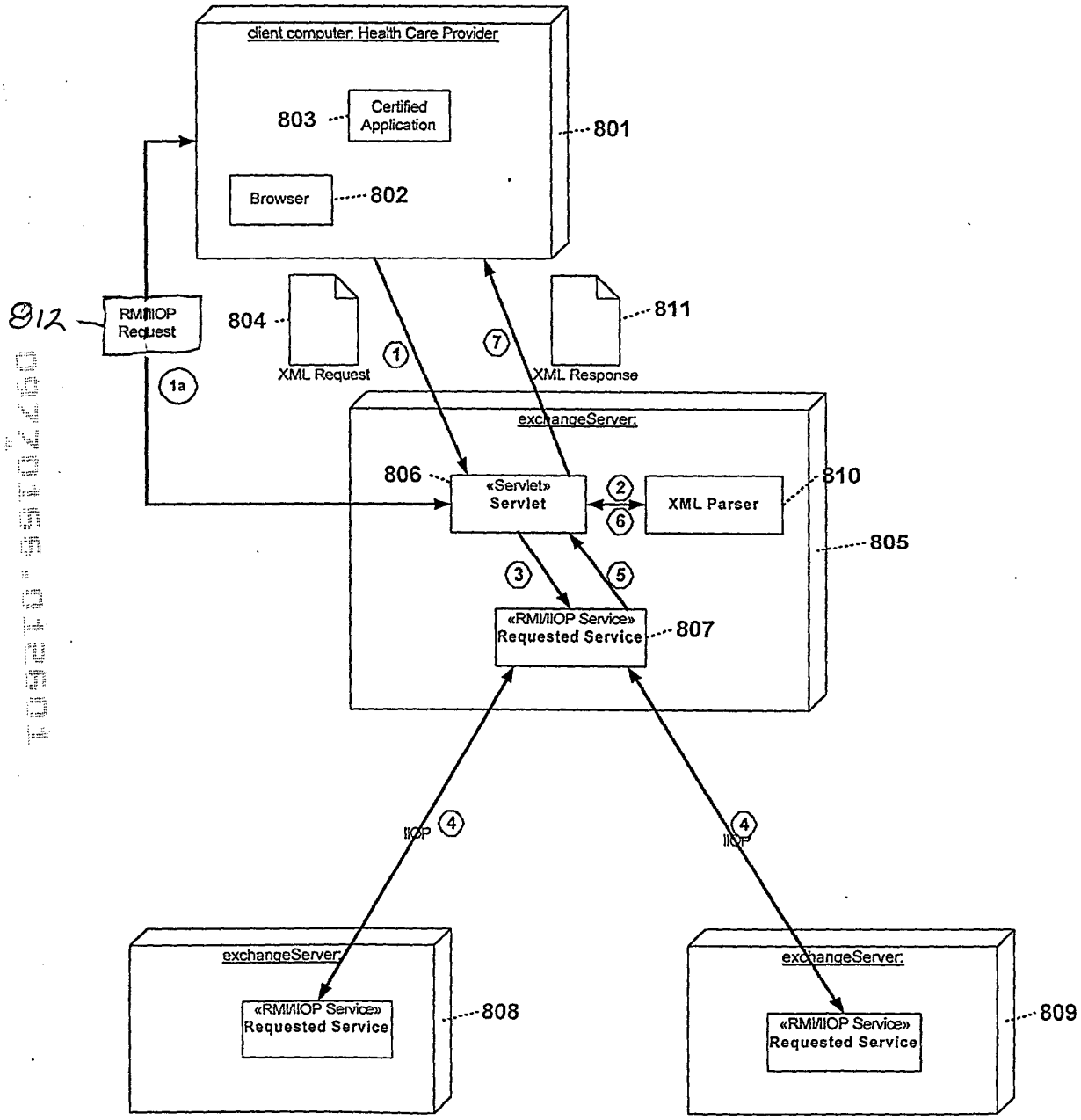
client computer: Health Care Provider
803
Certified Application
801
Browser
802
812
RMI/IIOP Request
804
XML Request
1
7
811
XML Response
1a
exchangeServer:
806
«Servlet» Servlet
2
6
XML Parser
810
805
3
5
«RMI/IIOP Service» Requested Service
807
IIOP
4
IIOP
4
exchangeServer:
«RMI/IIOP Service» Requested Service
808
exchangeServer:
«RMI/IIOP Service» Requested Service
809

FIG. 8

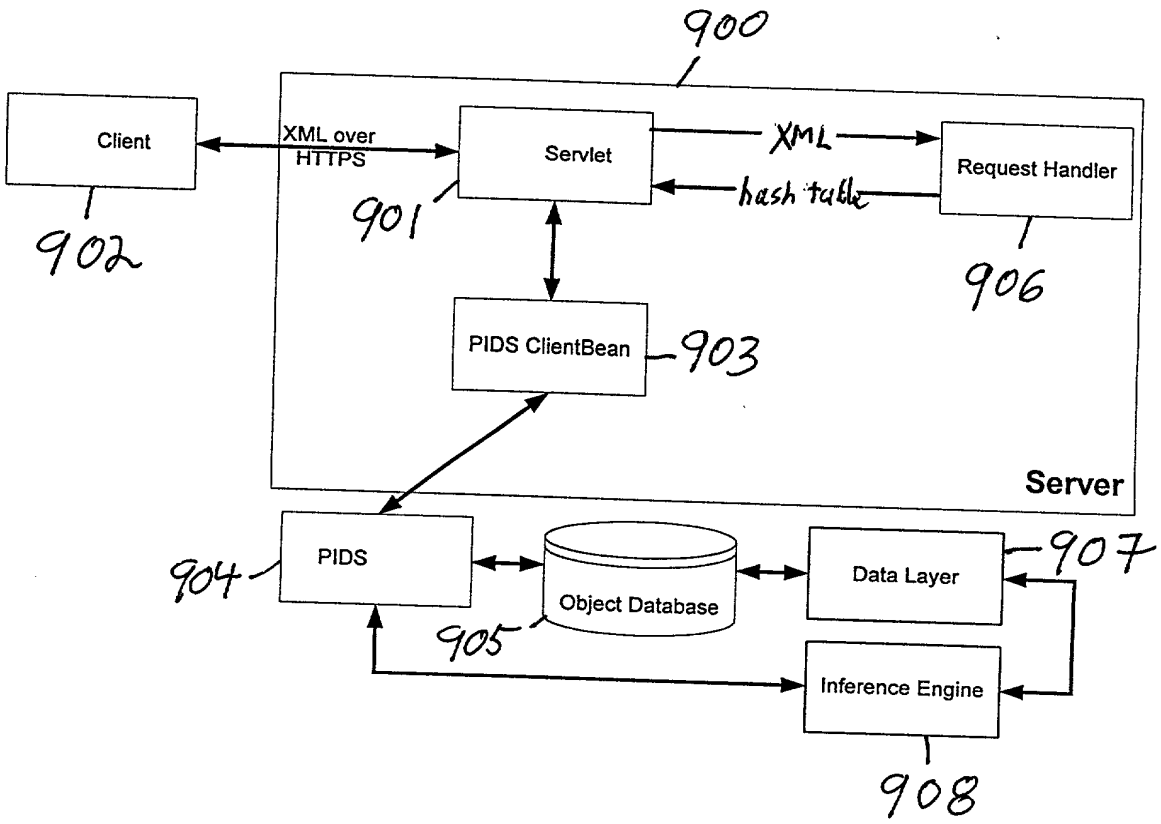
900
Client
XML over
HTTPS
Servlet
XML
hash table
Request Handler
902
901
906
PIDS ClientBean
903
Server
904
PIDS
Object Database
Data Layer
907
905
Inference Engine
908

FIG. 9

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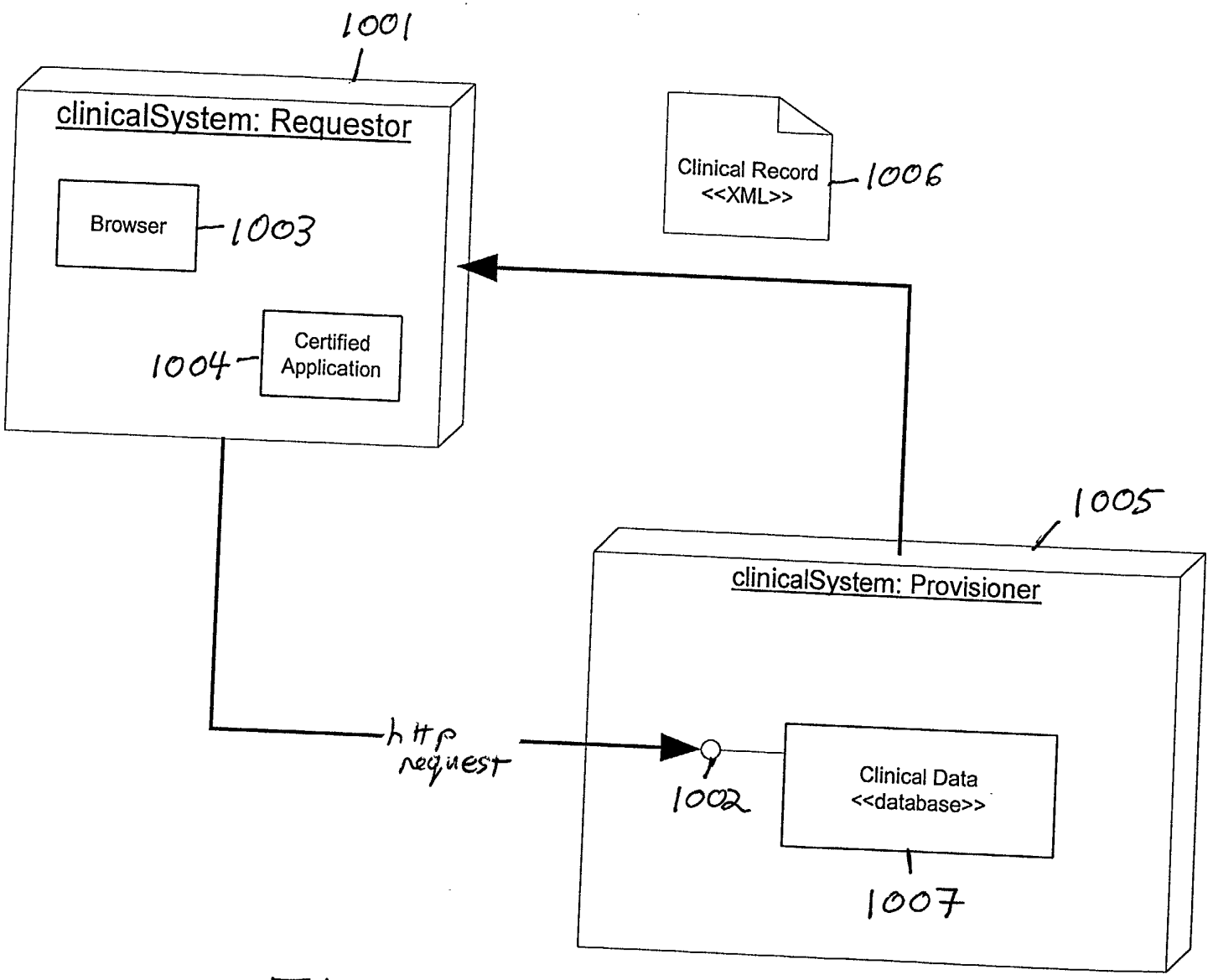

FIG. 10

T0928T0' 99T02260

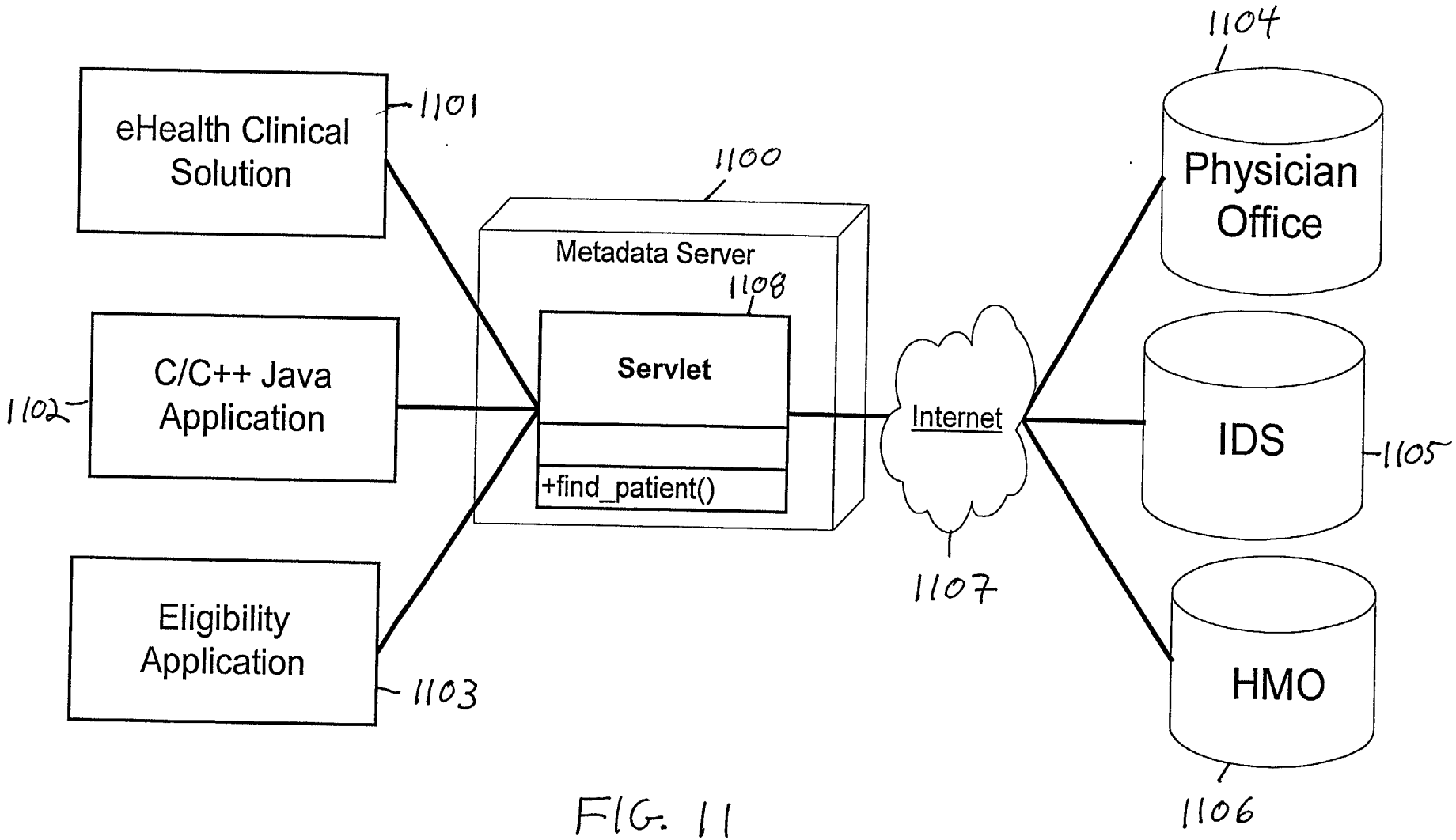

FIG. 11

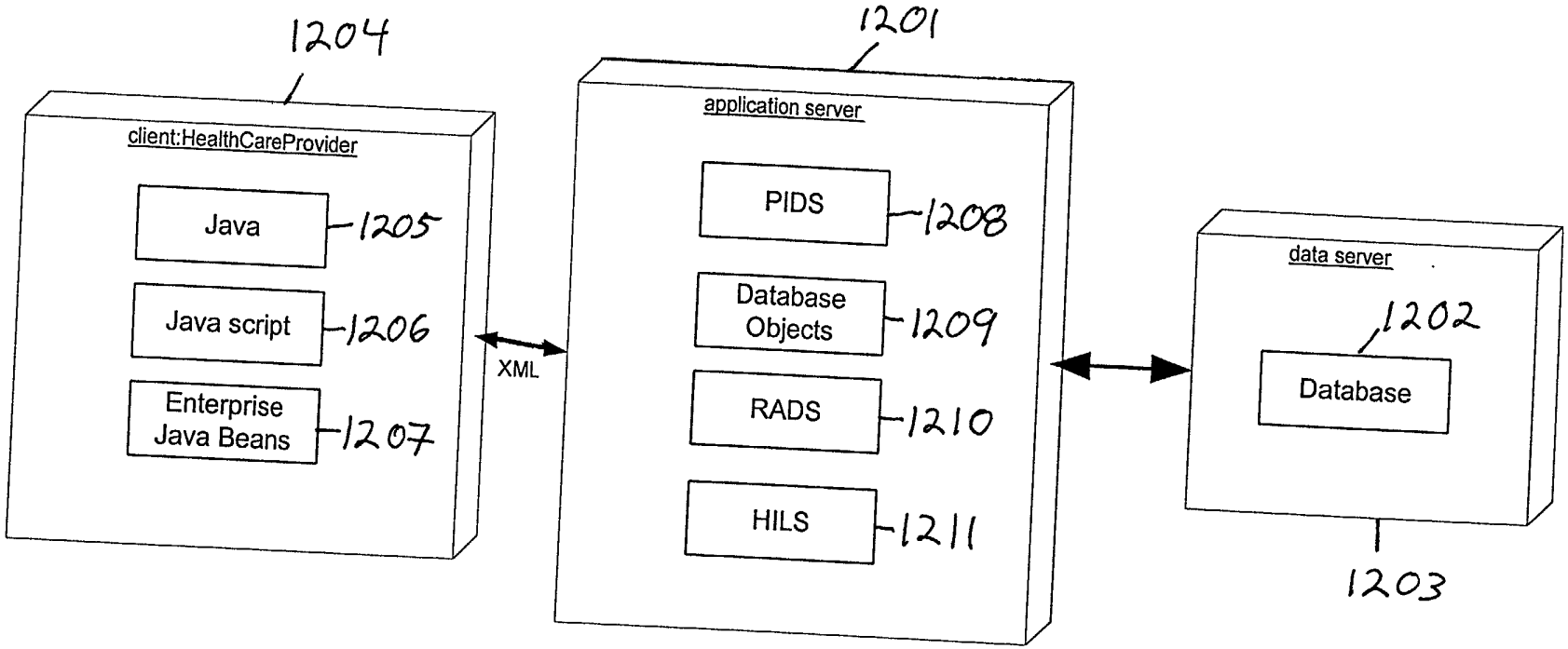
1204
client:HealthCareProvider
Java
1205
Java script
1206
Enterprise Java Beans
1207
XML
1201
application server
PIDS
1208
Database Objects
1209
RADS
1210
HILS
1211
data server
1202
Database
1203

FIG. 12

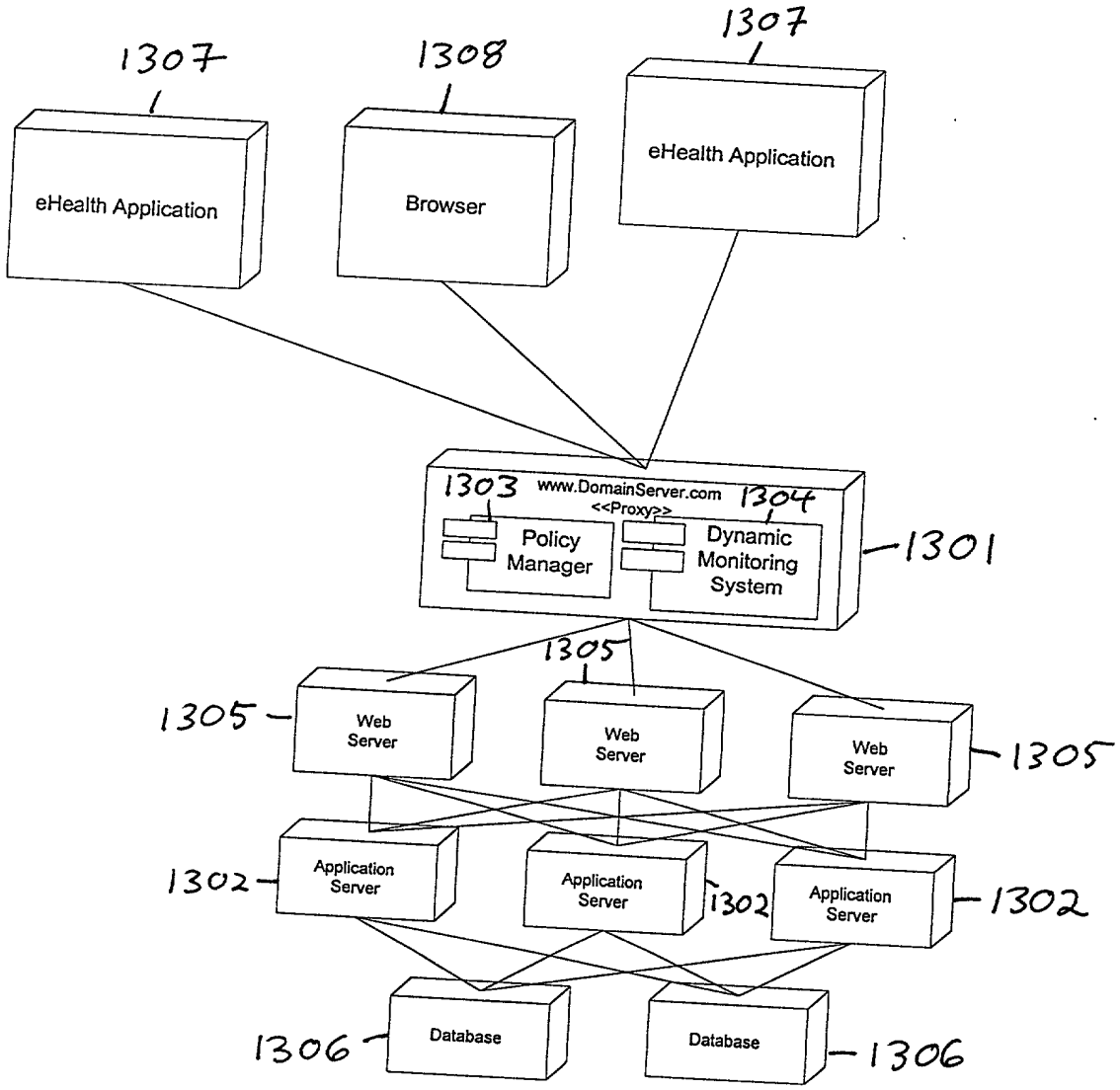
1307
1308
1307
eHealth Application
Browser
eHealth Application
1303
www.DomainServer.com
<<Proxy>>
1304
Policy Manager
Dynamic Monitoring System
1301
1305
1305
Web Server
Web Server
Web Server
1305
1302
Application Server
Application Server
1302
Application Server
1302
1306
Database
Database
1306

FIG. 13

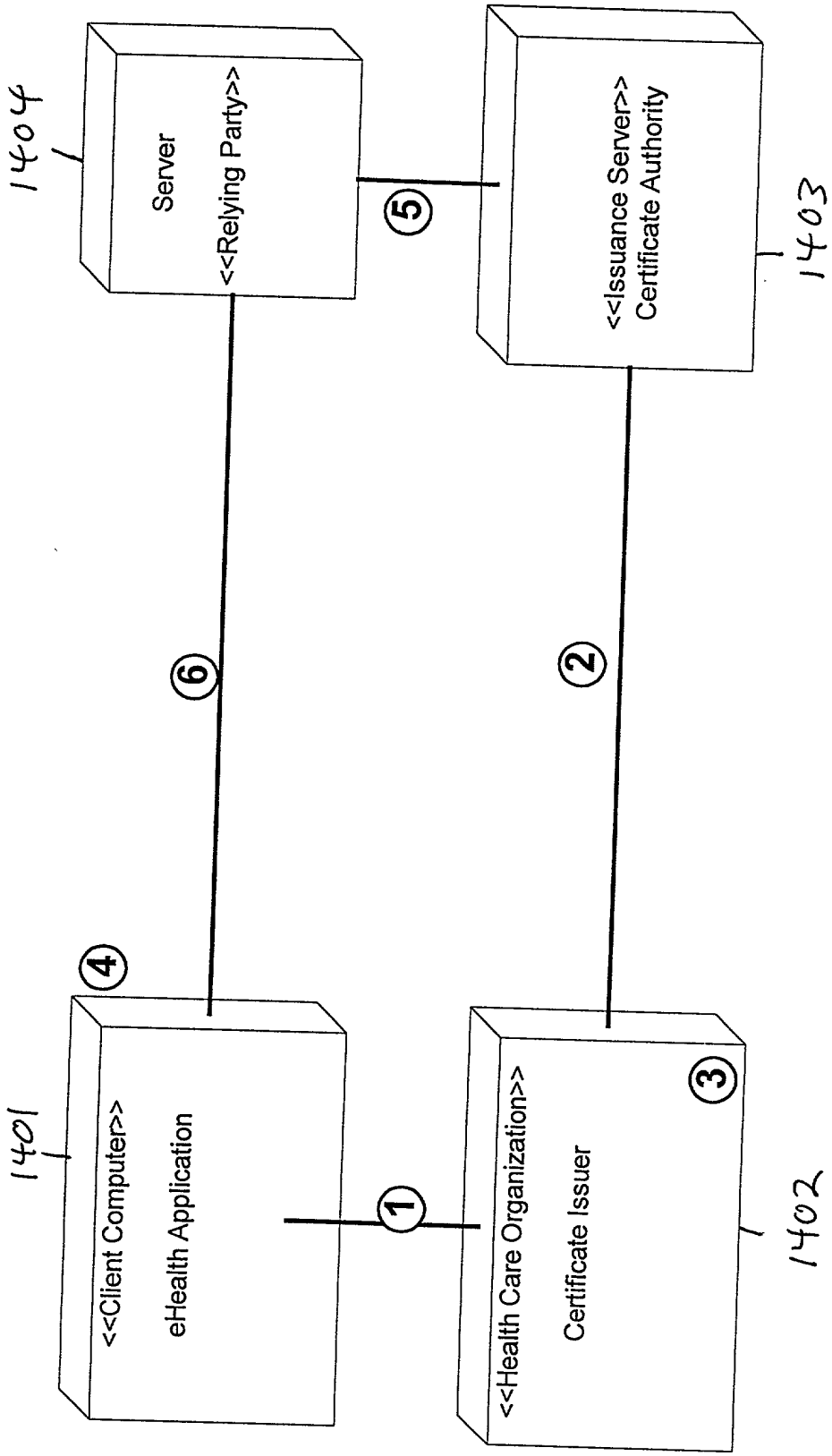
1404
Server
<<Relying Party>>
1403
<<Issuance Server>>
Certificate Authority
5
6
4
2
1401
<<Client Computer>>
eHealth Application
1
3
<<Health Care Organization>>
Certificate Issuer
1402

FIG 14

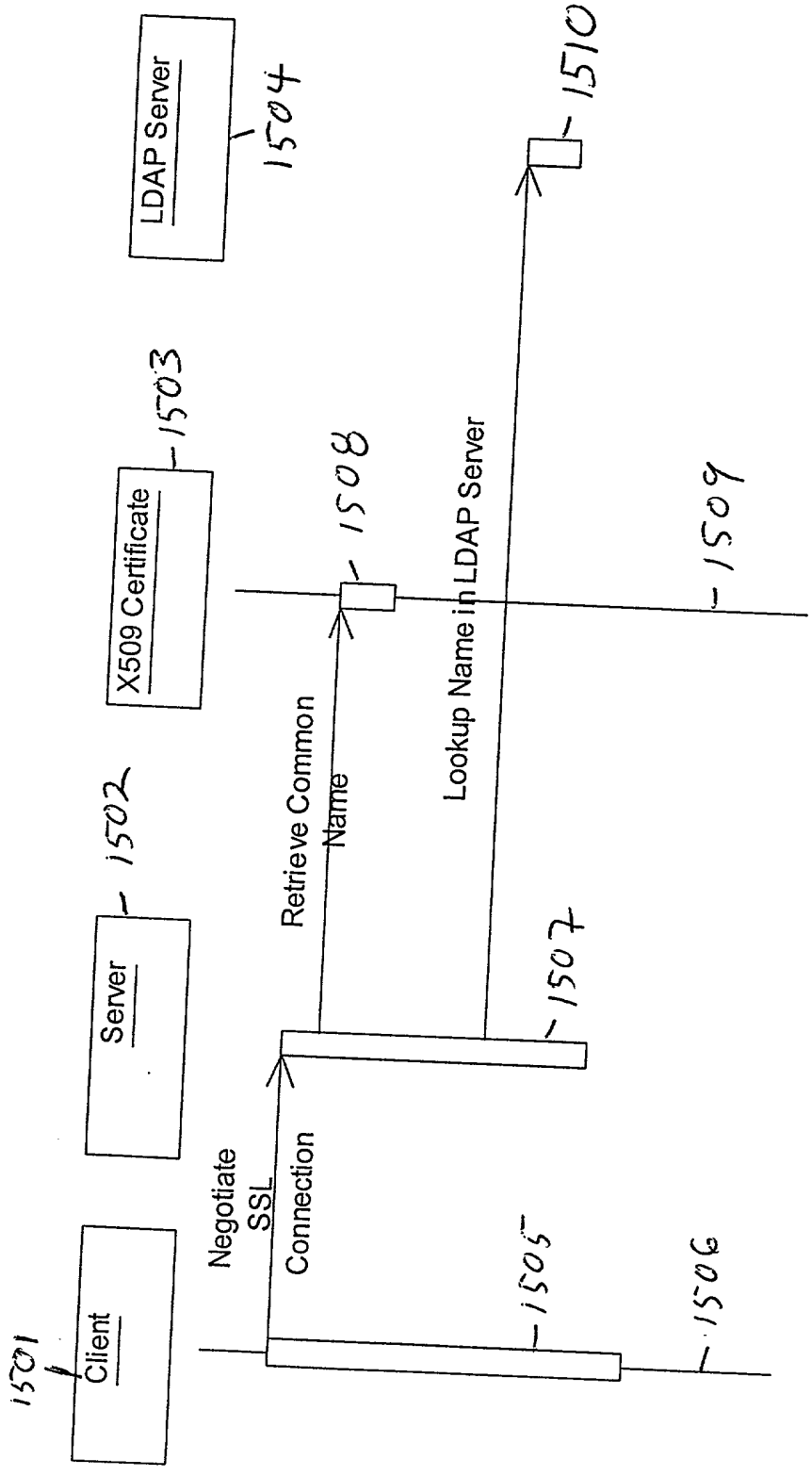
Client
Server
X509 Certificate
LDAP Server
1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
Negotiate SSL Connection
Retrieve Common Name
Lookup Name in LDAP Server

FIG. 15

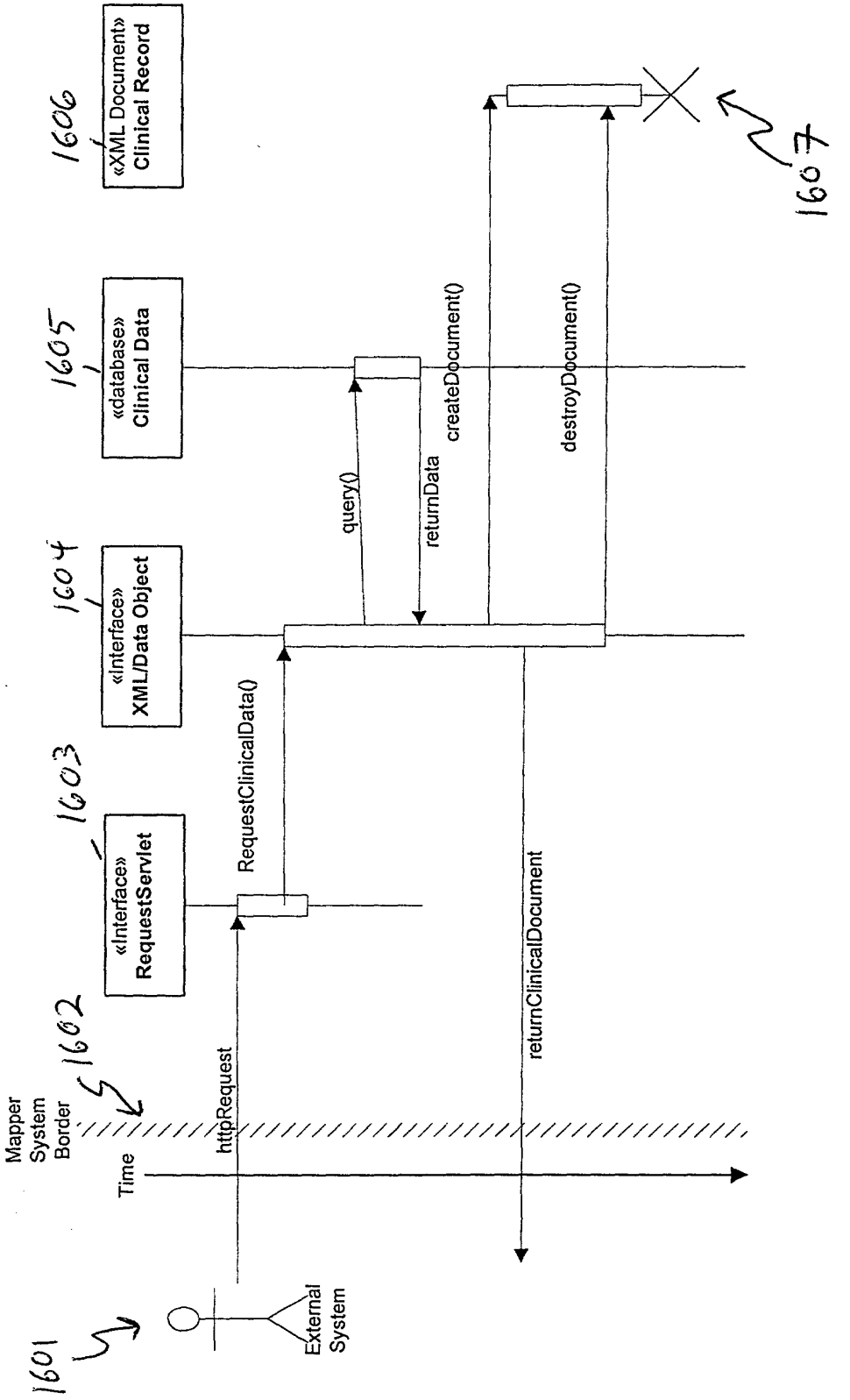
1601
External System
1602
Mapper System Border
Time
1603
«Interface» RequestServlet
1604
«Interface» XML/Data Object
1605
«database» Clinical Data
1606
«XML Document» Clinical Record
1607
httpRequest
RequestClinicalData()
query()
returnData
createDocument()
destroyDocument()
returnClinicalDocument

FIG. 16

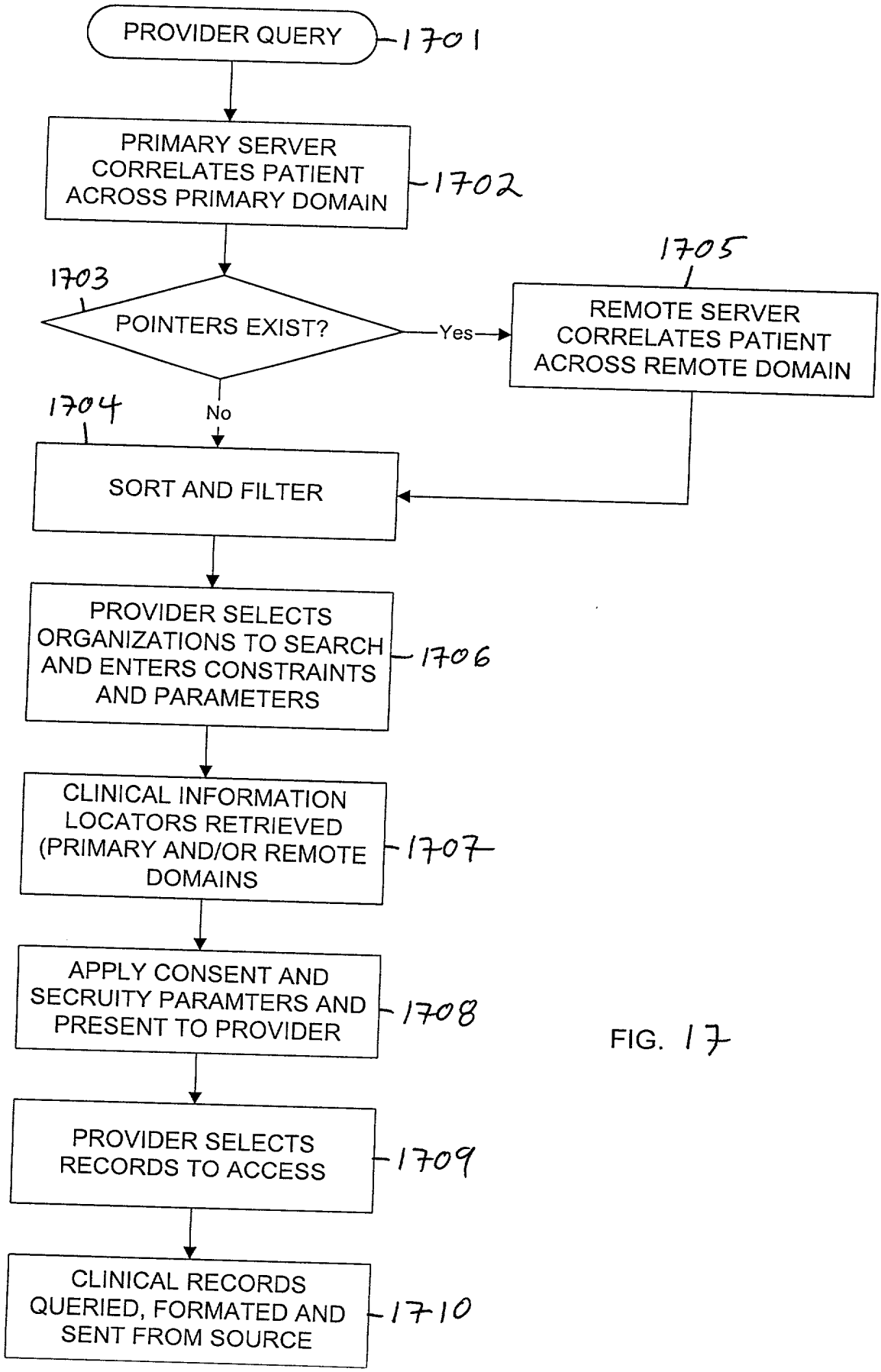

FIG. 17

Patent Application Publication

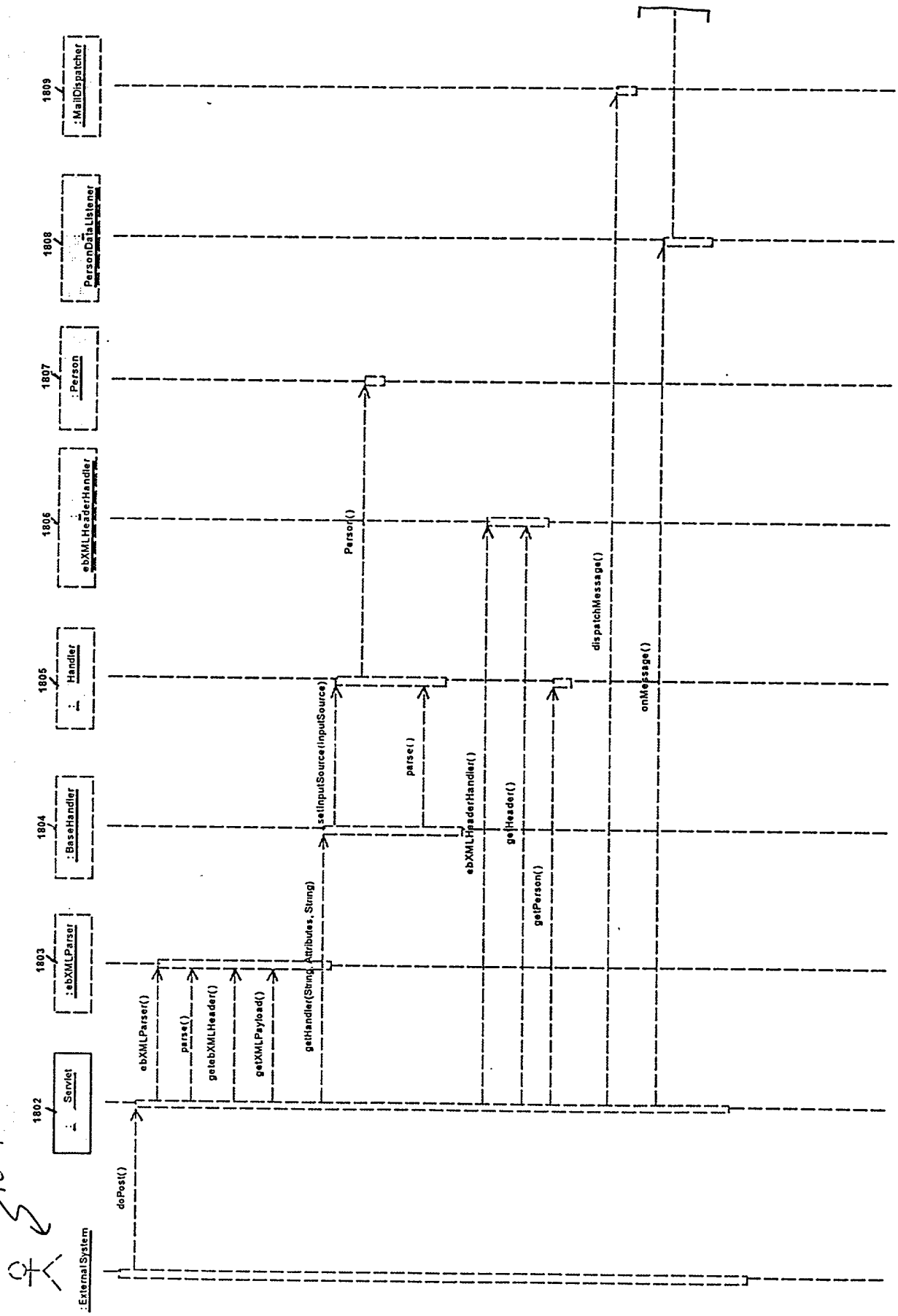
1801
:ExternalSystem
1802
: Servlet
1803
:ebXMLParser
1804
:BaseHandler
1805
: Handler
1806
ebXMLHeaderHandler
1807
:Person
1808
PersonDataListener
1809
:MailDispatcher
doPost()
ebXMLParser()
parse()
getebXMLHeader()
getXMLPayload()
getHandler(String, Attributes, String)
setInputSource(InputSource)
Parser()
parse()
ebXMLHeaderHandler()
getHeader()
getPerson()
dispatchMessage()
onMessage()

FIG. 18-17

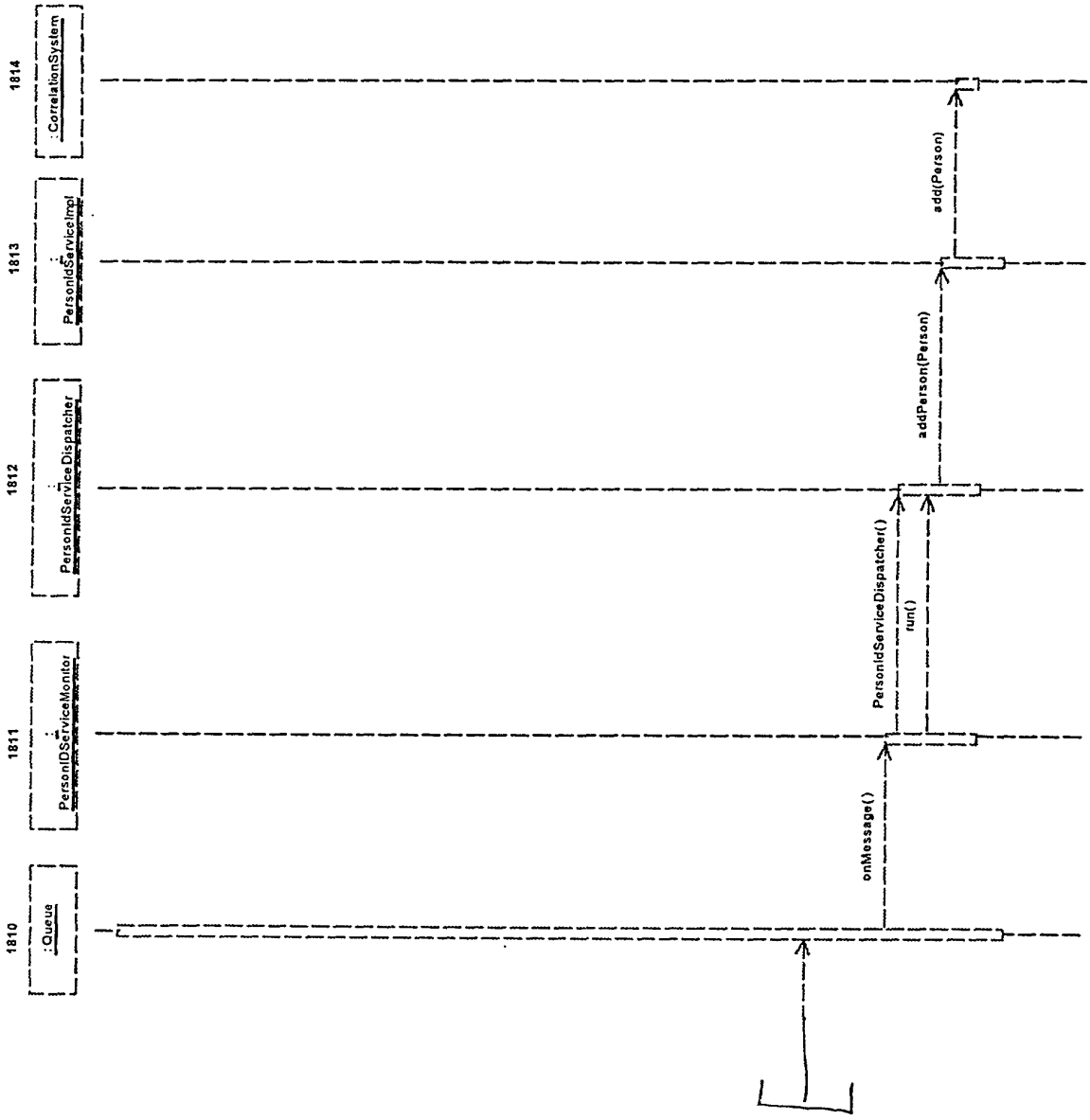
1810
:Queue
1811
PersonIDServiceMonitor
1812
PersonIdServiceDispatcher
1813
PersonIdServiceImpl
1814
:CorrelationSystem
onMessage()
PersonIdServiceDispatcher()
run()
addPerson(Person)
add(Person)

FIG. 18-B

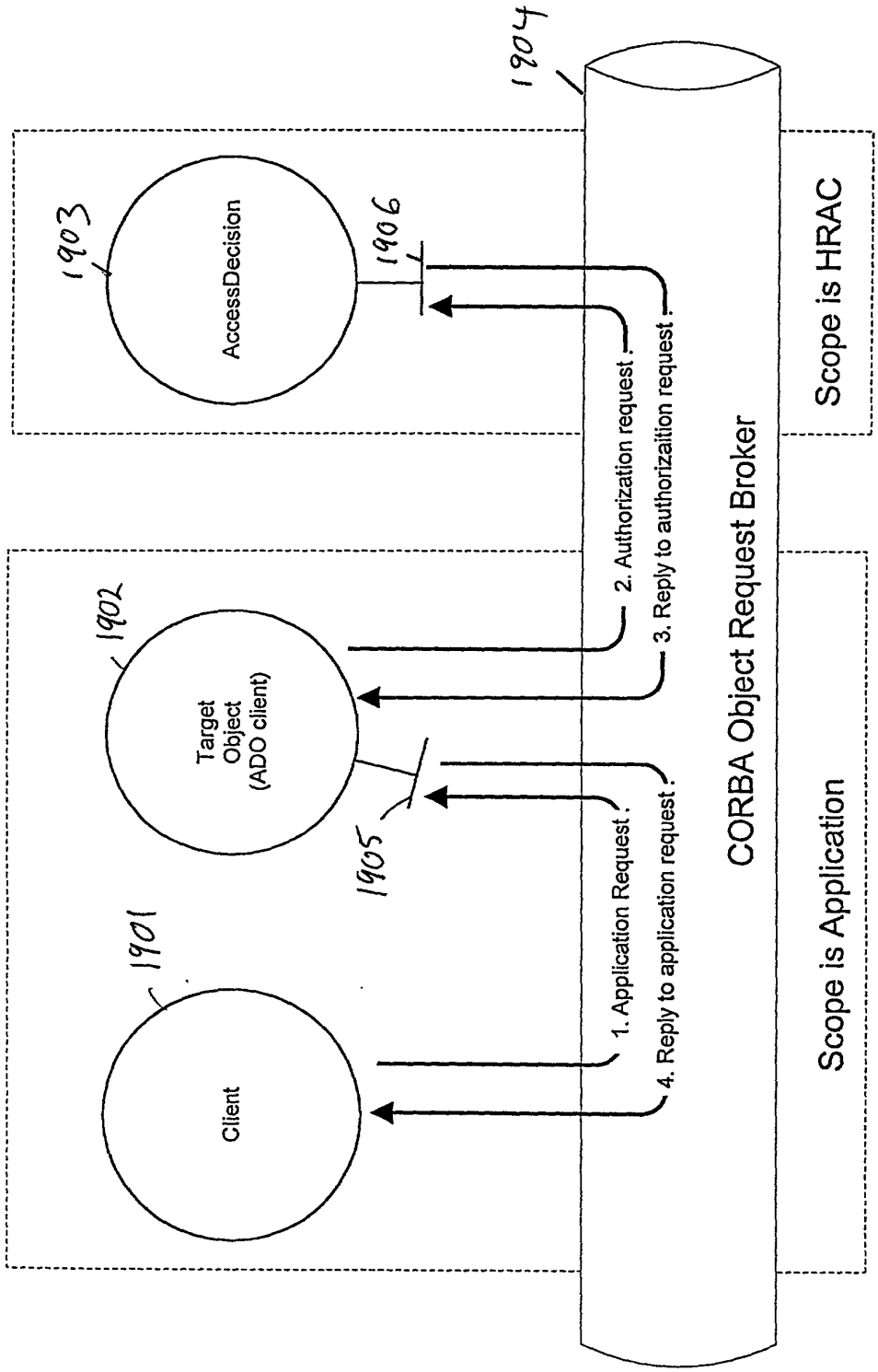
1904
1903
AccessDecision
1906
Scope is HRAC
2. Authorization request
3. Reply to authorizaition request
1902
Target
Object
(ADO client)
1905
1901
Client
1. Application Request
4. Reply to application request
CORBA Object Request Broker
Scope is Application

FIG. 19

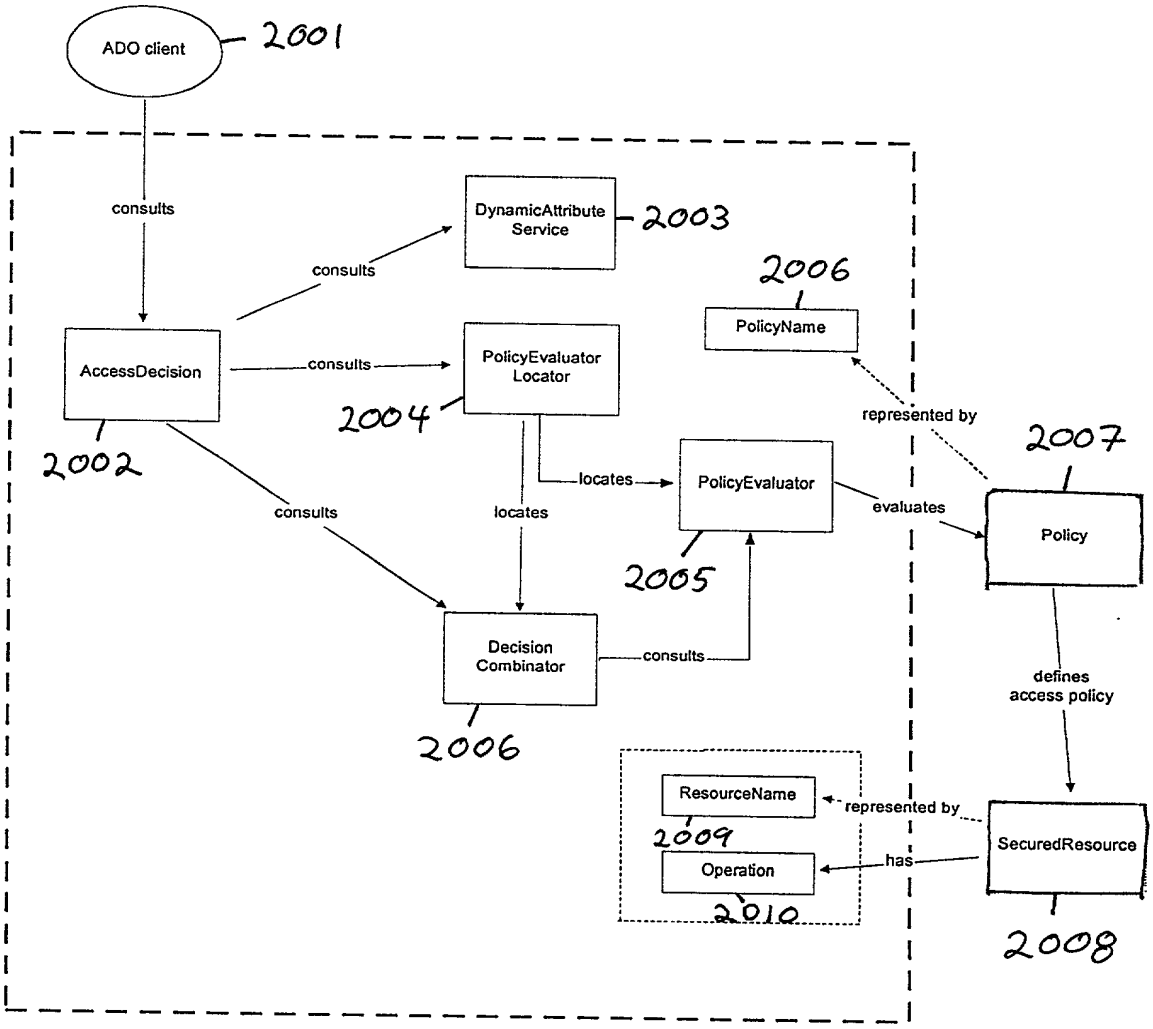
ADO client
2001
consults
DynamicAttribute Service
2003
consults
2006
PolicyName
AccessDecision
consults
PolicyEvaluator Locator
2004
represented by
2007
2002
locates
PolicyEvaluator
evaluates
Policy
consults
locates
2005
Decision Combinator
consults
defines access policy
2006
ResourceName
represented by
2009
SecuredResource
Operation
has
2010
2008

FIG. 20

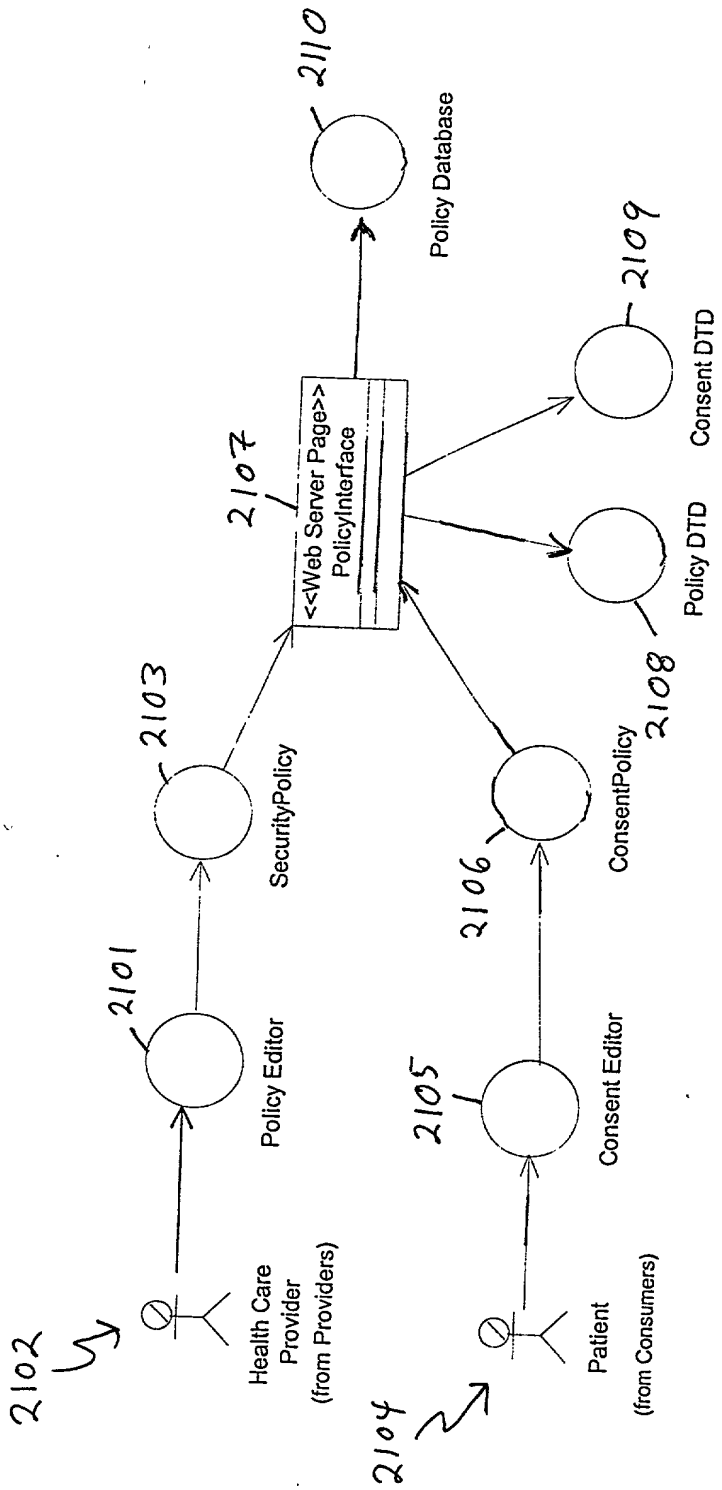
2102
Health Care Provider (from Providers)
2104
Patient (from Consumers)
2101
Policy Editor
2105
Consent Editor
2103
SecurityPolicy
2106
ConsentPolicy
2107
<<Web Server Page>>
PolicyInterface
2110
Policy Database
2109
Consent DTD
2108
Policy DTD

FIG. 21

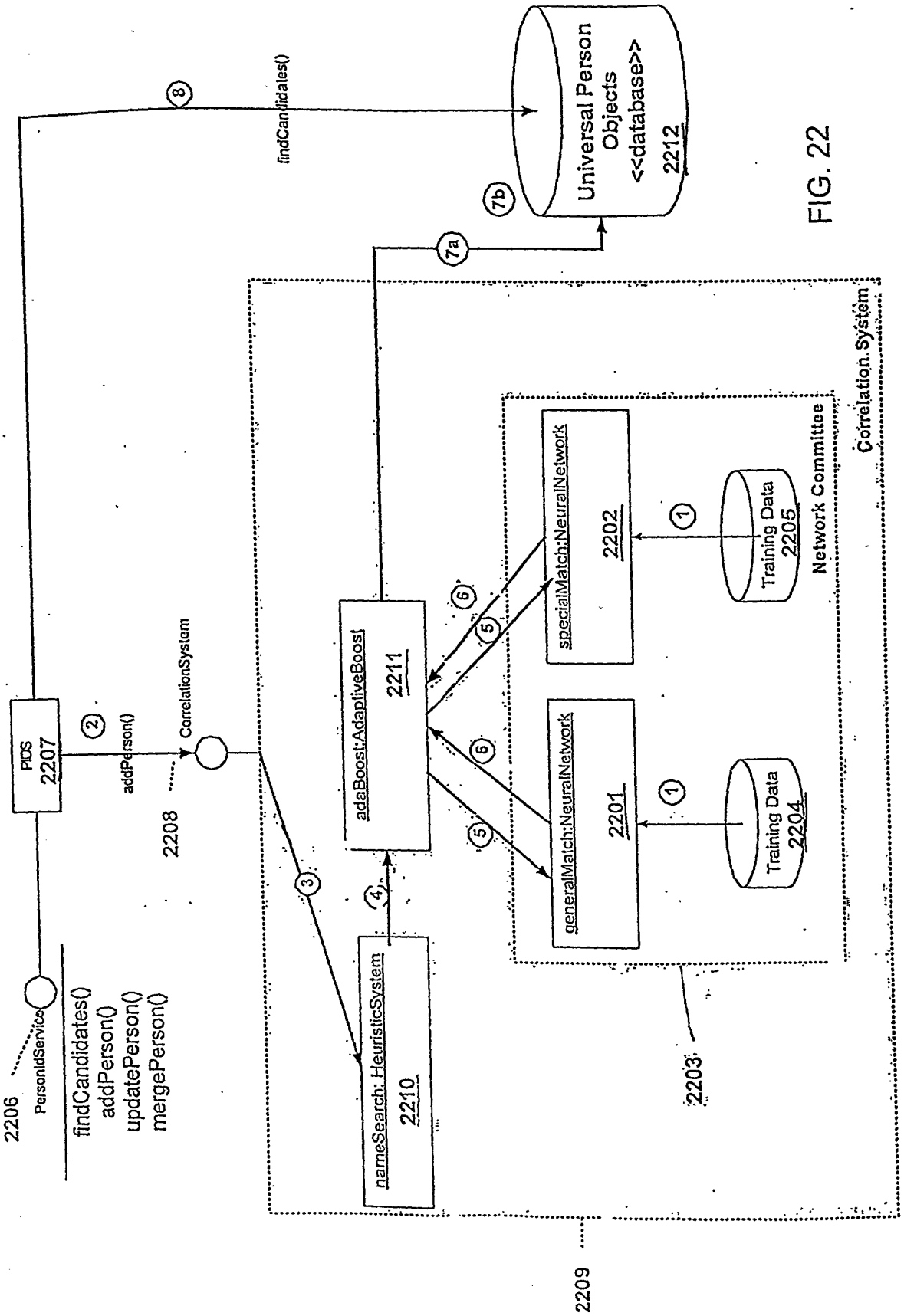
2206
PersonIdService
findCandidates()
addPerson()
updatePerson()
mergePerson()
PIDS
2207
addPerson()
CorrelationSystem
2208
nameSearch: HeuristicSystem
2210
adaBoost:AdaptiveBoost
2211
generalMatch:NeuralNetwork
2201
specialMatch:NeuralNetwork
2202
Training Data
2204
Training Data
2205
Network Committee
2203
Correlation System
2209
findCandidates()
Universal Person
Objects
<<database>>
2212
1
2
3
4
5
6
7a
7b
8

FIG. 22

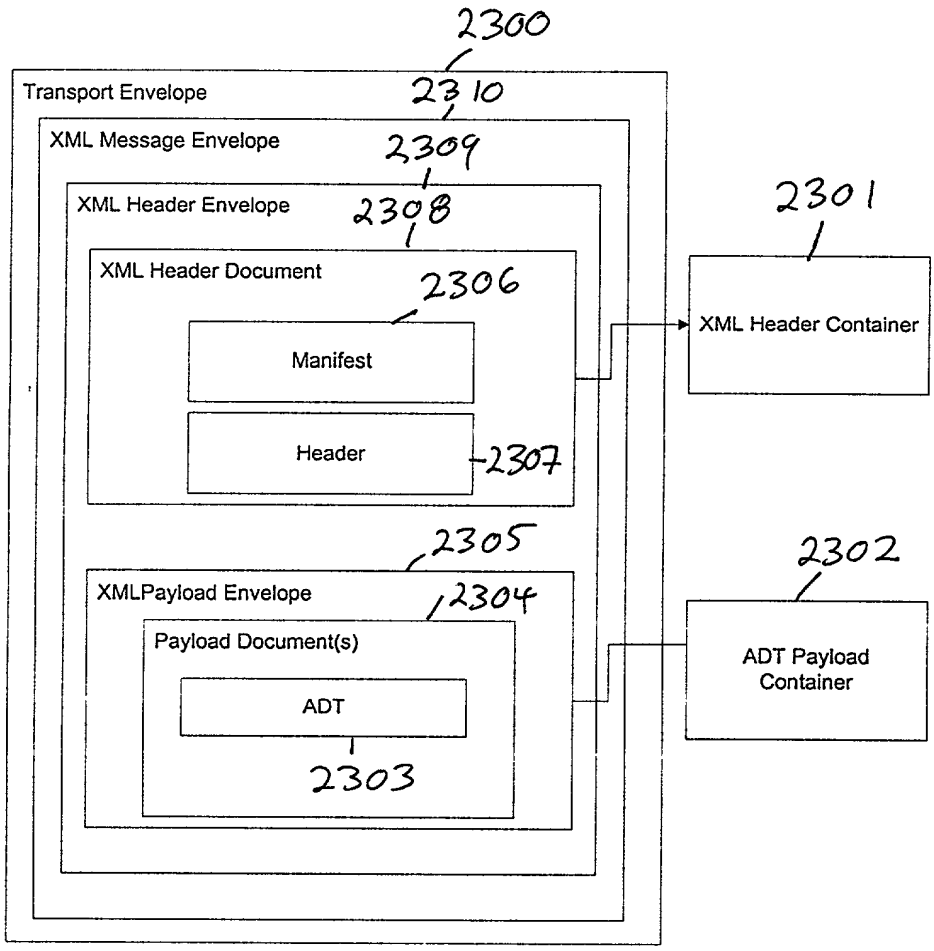
2300
Transport Envelope
2310
XML Message Envelope
2309
XML Header Envelope
2308
XML Header Document
2306
Manifest
Header
2307
2301
XML Header Container
2305
XMLPayload Envelope
2304
Payload Document(s)
ADT
2303
2302
ADT Payload Container

FIG. 23

```
<?xml version ="1.0"?> <schema xmlns = "http://www.w3.org/ 1999/XMLSchema">
<!ELEMENT ebXMLHeader (Manifest , Header )>
<!ATTLIST ebXMLHeader Version CDATA #FIXED '1.0'
MessageType CDATA #FIXED 'Normal' >
<!ELEMENT Manifest (DocumentReference )+>
<!ELEMENT DocumentReference (Document Description?, DocumentLabel , DocumentId )>
<!ELEMENT DocumentDescription (#PCDATA )>
<!ATTLIST DocumentDescription e-dtype NMTOKEN #FIXED 'string' >
<!ELEMENT DocumentLabel (#PCDATA )>
<!ATTLIST DocumentLabel e-dtype NMTOKEN #FIXED 'string' >
<!ELEMENT DocumentId (#PCDATA )>
<!ATTLIST DocumentId e-dtype NMTOKEN #FIXED 'uri' >
<!ELEMENT Header (From , To , TPAInfo , MessageData , ReliableMessagingInfo )>
<!ELEMENT TPAInfo (TPAId , ConversationId , ServiceInterface , Action )>
<!ELEMENT ServiceInterface (#PCDATA )>
<!ATTLIST ServiceInterface e-dtype NMTOKEN #FIXED 'string' >
<!ELEMENT Action (#PCDATA )>
<!ATTLIST Action e-dtype NMTOKEN #FIXED 'string' >
<!ELEMENT TPAId (#PCDATA )>
<!ATTLIST TPAId context CDATA 'Undefined'
e-dtype NMTOKEN #FIXED 'uri' >
<!ELEMENT ConversationId (#PCDATA )>
<!ATTLIST ConversationId context CDATA 'Undefined'
e-dtype NMTOKEN #FIXED 'uri' >
<!ELEMENT MessageData (MessageId , TimeStamp , RefToMessageId )>
<!ELEMENT RefToMessageId (#PCDATA )>
<!ATTLIST RefToMessageId e-dtype NMTOKEN #FIXED 'uuid' >
<!ELEMENT MessageId (#PCDATA )>
<!ATTLIST MessageId e-dtype NMTOKEN #FIXED 'uuid' >
<!ELEMENT From (PartyId )>
<!ELEMENT To (PartyId )>
<!ELEMENT PartyId (#PCDATA )>
<!ATTLIST PartyId context CDATA 'Undefined'
e-dtype NMTOKEN #FIXED 'uri' >
<!ELEMENT ReliableMessagingInfo EMPTY>
<!ATTLIST ReliableMessagingInfo DeliverySemantics (OnceAndOnlyOnce | BestEffort )
#FIXED 'BestEffort' >
<!ELEMENT RoutingHeader (SenderURI , ReceiverURI , ErrorURI, Timestamp,
SequenceNumber )> <!ELEMENT SenderURI (#PCDATA )>
<!ATTLIST SenderURI e-dtype NMTOKEN #FIXED 'uri' >
<!ELEMENT ReceiverURI (#PCDATA )>
<!ATTLIST ReceiverURI e-dtype NMTOKEN #FIXED 'uri' >
<!ELEMENT ErrorURI (#PCDATA )>
<!ATTLIST ErrorURI e-dtype NMTOKEN #FIXED 'uri' >
<!ELEMENT TimeStamp (#PCDATA )>
<!ATTLIST TimeStamp e-dtype NMTOKEN #FIXED 'dateTime' >
<!ELEMENT SequenceNumber (#PCDATA )>
```

FIG. 24

```
<!-- Include HL7 Version 2.3.1 datatypes specification -->
<!ENTITY % HL7V231-datatypes PUBLIC "-//HL7//DTD HL7 V2.3.1 datatype
definitions//EN" "datatypes.dtd">
%HL7V231-datatypes;
<!-- Message declaration -->
<!ENTITY % ADT_A08.CONTENT "(MSH,EVN,PID)">
<!ELEMENT ADT_A08 %ADT_A08.CONTENT;>
<!-- Segment declarations -->
<!ENTITY % EVN.CONTENT "(EVN.1?,EVN.2,EVN.4?,EVN.7?)">
<!ELEMENT EVN %EVN.CONTENT;>
<!ENTITY % MSH.CONTENT "(MSH.1,MSH.2,MSH.3?,MSH.4?,MSH.5?,MSH.6?,MSH.7,MSH.8?,MSH.
9,MSH.10,MSH.11,MSH.12,MSH.13?,MSH.14?,MSH.15?,MSH.16?">
<!ELEMENT MSH %MSH.CONTENT;>
<!ENTITY % PID.CONTENT "(PID.3+,PID.5+,PID.6*,PID.7?,PID.8?,PID.9*,PID.10*,PID.11*
,PID.12?,PID.13*,PID.14*,PID.16?,PID.17?,PID.19?,PID.20?,PI
D.22*,PID.23?,PID.28?)">
<!ELEMENT PID %PID.CONTENT;>
<!-- Field declarations -->
<!-- EVN field declarations -->
<!ELEMENT EVN.1 %EVN.1.CONTENT;>
<!ENTITY % EVN.1.ATTRIBUTES "Item CDATA #FIXED '99'
 Table CDATA #FIXED '3'
 LongName CDATA #FIXED 'Event Type Code'
 Type CDATA #FIXED 'ID'">
<!ATTLIST EVN.1  %EVN.1.ATTRIBUTES; >
<!ENTITY % EVN.2.CONTENT "%TS;">
<!ELEMENT EVN.2 %EVN.2.CONTENT;>
<!ENTITY % EVN.2.ATTRIBUTES "Item CDATA #FIXED '100'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Recorded Date/Time'
Type CDATA #FIXED 'TS'">
<!ATTLIST EVN.2  %EVN.2.ATTRIBUTES; >
<!ENTITY % EVN.4.CONTENT "%IS;">
<!ELEMENT EVN.4 %EVN.4.CONTENT;>
<!ENTITY % EVN.4.ATTRIBUTES "Item CDATA #FIXED '102'
  Table CDATA #FIXED '62'
  LongName CDATA #FIXED 'Event Reason Code'
  Type CDATA #FIXED 'IS'">
<!ATTLIST EVN.4  %EVN.4.ATTRIBUTES; >
<!ENTITY % EVN.7.CONTENT "%HD;">
<!ELEMENT EVN.7 %EVN.7.CONTENT;>
<!ENTITY % EVN.7.ATTRIBUTES "Item CDATA #FIXED '1534'
Table CDATA #FIXED '0'
LongName CDATA #FIXED Event Facility'
Type CDATA #FIXED 'HD'">
<!ATTLIST EVN.7  %EVN.7.ATTRIBUTES; >
```

FIG. 25-A

```
<!-- MSH field declarations -->
<!ENTITY % MSH.1.CONTENT "%ST;">
<!ELEMENT MSH.1 %MSH.1.CONTENT;>
<!ENTITY % MSH.1.ATTRIBUTES "Item CDATA #FIXED '1'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Field Separator'
Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.1  %MSH.1.ATTRIBUTES; >
<!ENTITY % MSH.2 .CONTENT "%ST;">
<!ELEMENT MSH.2 %MSH.2.CONTENT;>
<!ENTITY % MSH.2.ATTRIBUTES "Item CDATA #FIXED '2'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Encoding Characters'
Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.2  %MSH.2.ATTRIBUTES; >
<!ENTITY % MSH.3.CONTENT "%HD;">
<!ELEMENT MSH.3 %MSH.3.CONTENT;>
<!ENTITY % MSH.3.ATTRIBUTES "Item CDATA #FIXED '3'
Table CDATA #FIXED '361'
LongName CDATA #FIXED 'Sending Application'
Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.3  %MSH.3.ATTRIBUTES; >
<!ENTITY % MSH.4.CONTENT "%HD;">
<!ELEMENT MSH.4 %MSH.4.CONTENT;>
<!ENTITY % MSH.4.ATTRIBUTES "Item CDATA #FIXED '4'
Table CDATA #FIXED '362'
LongName CDATA #FIXED 'Sending Facility'
Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.4  %MSH.4.ATTRIBUTES; >
<!ENTITY % MSH.5.CONTENT "%HD;">
<!ELEMENT MSH.5 %MSH.5.CONTENT;>
<!ENTITY % MSH.5.ATTRIBUTES "Item CDATA #FIXED '5'
Table CDATA #FIXED '361'
LongName CDATA #FIXED 'Receiving Application'
Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.5  %MSH.5.ATTRIBUTES; >
<!ENTITY % MSH.6.CONTENT "%HD;">
<!ELEMENT MSH.6 %MSH.6.CONTENT;>
<!ENTITY % MSH.6.ATTRIBUTES "Item CDATA #FIXED '6'
Table CDATA #FIXED '362'
LongName CDATA #FIXED 'Receiving Facility'
Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.6  %MSH.6.ATTRIBUTES; >
<!ENTITY % MSH.7.CONTENT "%TS;">
<!ELEMENT MSH.7 %MSH.7.CONTENT;>
```

FIG. 25-B

```
<!ENTITY % MSH.7.ATTRIBUTES "Item CDATA #FIXED '7'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Date/Time Of Message'
Type CDATA #FIXED 'TS'">
<!ATTLIST MSH.7  %MSH.7.ATTRIBUTES; >
<!ENTITY % MSH.8.CONTENT "%ST;">
<!ELEMENT MSH.8 %MSH.8.CONTENT;>
<!ENTITY % MSH.8.ATTRIBUTES "Item CDATA #FIXED '8'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Security'
Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.8  %MSH.8.ATTRIBUTES; >
<!ENTITY % MSH.9.CONTENT "%CM_MSG_TYPE;">
<!ELEMENT MSH.9 %MSH.9.CONTENT;>
<!ENTITY % MSH.9.ATTRIBUTES "Item CDATA #FIXED '9'
Table CDATA #FIXED '76'
LongName CDATA #FIXED 'Message Type'
Type CDATA #FIXED 'CM_MSG_TYPE'">
<!ATTLIST MSH.9  %MSH.9.ATTRIBUTES; >
<!ENTITY % MSH.10.CONTENT "%ST;">
<!ELEMENT MSH.10 %MSH.10.CONTENT;>
<!ENTITY % MSH.10.ATTRIBUTES "Item CDATA #FIXED '10'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Message Control ID'
Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.10  %MSH.10.ATTRIBUTES; >
<!ENTITY % MSH.11.CONTENT "%PT;">
<!ELEMENT MSH.11 %MSH.11.CONTENT;>
<!ENTITY % MSH.11.ATTRIBUTES "Item CDATA #FIXED '11'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Processing ID'
Type CDATA #FIXED 'PT'">
<!ATTLIST MSH.11  %MSH.11.ATTRIBUTES; >
<!ENTITY % MSH.12.CONTENT "%VID;">
<!ELEMENT MSH.12 %MSH.12.CONTENT;>
<!ENTITY % MSH.12.ATTRIBUTES "Item CDATA #FIXED '12'
Table CDATA #FIXED '104'
LongName CDATA #FIXED 'Version ID'
Type CDATA #FIXED 'VID'">
<!ATTLIST MSH.12  %MSH.12.ATTRIBUTES; >
<!ENTITY % MSH.13.CONTENT "%NM;">
<!ELEMENT MSH.13 %MSH.13.CONTENT;>
<!ENTITY % MSH.13.ATTRIBUTES "Item CDATA #FIXED '13'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Sequence Number'
```

FIG. 25-C

```
Type CDATA #FIXED 'NM'">
<!ATTLIST MSH.13  %MSH.13.ATTRIBUTES; >
<!ENTITY % MSH.14.CONTENT "%ST;">
<!ELEMENT MSH.14 %MSH.14.CONTENT;>
<!ENTITY % MSH.14.ATTRIBUTES "Item CDATA #FIXED '14'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Continuation Pointer'
Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.14  %MSH.14.ATTRIBUTES; >
<!ENTITY % MSH.15.CONTENT "%ID;">
<!ELEMENT MSH.15 %MSH.15.CONTENT;>
<!ENTITY % MSH.15.ATTRIBUTES "Item CDATA #FIXED '15'
Table CDATA #FIXED '155'
LongName CDATA #FIXED 'Accept Acknowledgment Type'
Type CDATA #FIXED 'ID'">
<!ATTLIST MSH.15  %MSH.15.ATTRIBUTES; >
<!ENTITY % MSH.16.CONTENT "%ID;">
<!ELEMENT MSH.16 %MSH.16.CONTENT;>
<!ENTITY % MSH.16.ATTRIBUTES "Item CDATA #FIXED '16'
Table CDATA #FIXED '155'
LongName CDATA #FIXED 'Application Acknowledgment Type'
Type CDATA #FIXED 'ID'">
<!ATTLIST MSH.16  %MSH.16.ATTRIBUTES; >
<!-- PID Field declarations -->
<!ENTITY % PID.3.CONTENT "%CX;">
<!ELEMENT PID.3 %PID.3.CONTENT;>
<!ENTITY % PID.3.ATTRIBUTES "Item CDATA #FIXED '106'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Patient Identifier List'
Type CDATA #FIXED 'CX'">
<!ATTLIST PID.3  %PID.3.ATTRIBUTES; >
<!ENTITY % PID.5.CONTENT "%XPN;">
<!ELEMENT PID.5 %PID.5.CONTENT;>
<!ENTITY % PID.5.ATTRIBUTES "Item CDATA #FIXED '108'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Patient Name'
Type CDATA #FIXED 'XPN'">
<!ATTLIST PID.5  %PID.5.ATTRIBUTES; >
<!ENTITY % PID.6.CONTENT "%XPN;">
<!ELEMENT PID.6 %PID.6.CONTENT;>
<!ENTITY % PID.6.ATTRIBUTES "Item CDATA #FIXED '109'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Mother&apos;s Maiden Name'
Type CDATA #FIXED 'XPN'">
<!ATTLIST PID.6  %PID.6.ATTRIBUTES; >
```

FIG. 25-D

```
<!ENTITY % PID.7.CONTENT "%TS;">
<!ELEMENT PID.7 %PID.7.CONTENT;>
<!ENTITY % PID.7.ATTRIBUTES "Item CDATA #FIXED '110'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Date/Time Of Birth'
Type CDATA #FIXED 'TS'">
<!ATTLIST PID.7  %PID.7.ATTRIBUTES; >
<!ENTITY % PID.8.CONTENT "%IS;">
<!ELEMENT PID.8 %PID.8.CONTENT;>
<!ENTITY % PID.8.ATTRIBUTES "Item CDATA #FIXED '111'
Table CDATA #FIXED '1'
LongName CDATA #FIXED 'Administrative Sex'
Type CDATA #FIXED 'IS'">
<!ATTLIST PID.8  %PID.8.ATTRIBUTES; >
<!ENTITY % PID.9.CONTENT "%XPN;">
<!ELEMENT PID.9 %PID.9.CONTENT;>
<!ENTITY % PID.9.ATTRIBUTES "Item CDATA #FIXED '112'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Patient Alias'
Type CDATA #FIXED 'XPN'">
<!ATTLIST PID.9  %PID.9.ATTRIBUTES; >
<!ENTITY % PID.10.CONTENT "%CE;">
<!ELEMENT PID.10 %PID.10.CONTENT;>
<!ENTITY % PID.10.ATTRIBUTES "Item CDATA #FIXED '113'
Table CDATA #FIXED '5'
LongName CDATA #FIXED 'Race'
Type CDATA #FIXED 'CE'">
<!ATTLIST PID.10  %PID.10.ATTRIBUTES; >
<!ENTITY % PID.11.CONTENT "%XAD;">
<!ELEMENT PID.11 %PID.11.CONTENT;>
<!ENTITY % PID.11.ATTRIBUTES "Item CDATA #FIXED '114'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Patient Address'
Type CDATA #FIXED 'XAD'">
<!ATTLIST PID.11  %PID.11.ATTRIBUTES; >
<!ENTITY % PID.12.CONTENT "%IS;">
<!ELEMENT PID.12 %PID.12.CONTENT;>
<!ENTITY % PID.12.ATTRIBUTES "Item CDATA #FIXED '115'
Table CDATA #FIXED '289'
LongName CDATA #FIXED 'County Code'
Type CDATA #FIXED 'IS'">
<!ATTLIST PID.12  %PID.12.ATTRIBUTES; >
<!ENTITY % PID.13.CONTENT "%XTN;">
<!ELEMENT PID.13 %PID.13.CONTENT;>
<!ENTITY % PID.13.ATTRIBUTES "Item CDATA #FIXED '116'
```

FIG. 25-E

```
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Phone Number - Home'
Type CDATA #FIXED 'XTN'">
<!ATTLIST PID.13  %PID.13.ATTRIBUTES; >
<!ENTITY % PID.14.CONTENT "%XTN;">
<!ELEMENT PID.14 %PID.14.CONTENT;>
<!ENTITY % PID.14.ATTRIBUTES "Item CDATA #FIXED '117'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Phone Number - Business'
Type CDATA #FIXED 'XTN'">
<!ATTLIST PID.14  %PID.14.ATTRIBUTES; >
<!ENTITY % PID.16.CONTENT "%CE;">
<!ELEMENT PID.16 %PID.16.CONTENT;>
<!ENTITY % PID.16.ATTRIBUTES "Item CDATA #FIXED '119'
Table CDATA #FIXED '2'
LongName CDATA #FIXED 'Marital Status'
Type CDATA #FIXED 'CE'">
<!ATTLIST PID.16  %PID.16.ATTRIBUTES; >
<!ENTITY % PID.17.CONTENT "%CE;">
<!ELEMENT PID.17 %PID.17.CONTENT;>
<!ENTITY % PID.17.ATTRIBUTES "Item CDATA #FIXED '120'
Table CDATA #FIXED '6'
LongName CDATA #FIXED 'Religion'
Type CDATA #FIXED 'CE'">
<!ATTLIST PID.17  %PID.17.ATTRIBUTES; >
<!ENTITY % PID.19.CONTENT "%ST;">
<!ELEMENT PID.19 %PID.19.CONTENT;>
<!ENTITY % PID.19.ATTRIBUTES "Item CDATA #FIXED '122'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'SSN Number - Patient'
Type CDATA #FIXED 'ST'">
<!ATTLIST PID.19  %PID.19.ATTRIBUTES; >
<!ENTITY % PID.20.CONTENT "%DLN;">
<!ELEMENT PID.20 %PID.20.CONTENT;>
<!ENTITY % PID.20.ATTRIBUTES "Item CDATA #FIXED '123'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Driver&apos;s License Number - Patient'
Type CDATA #FIXED 'DLN'">
<!ATTLIST PID.20  %PID.20.ATTRIBUTES; >
<!ENTITY % PID.22.CONTENT "%CE;">
<!ELEMENT PID.22 %PID.22.CONTENT;>
<!ENTITY % PID.22.ATTRIBUTES "Item CDATA #FIXED '125'
Table CDATA #FIXED '189'
LongName CDATA #FIXED 'Ethnic Group'
Type CDATA #FIXED 'CE'">
```

FIG. 25-F

```
<!ATTLIST PID.22  %PID.22.ATTRIBUTES; >
<!ENTITY % PID.23.CONTENT "%ST;">
<!ELEMENT PID.23 %PID.23.CONTENT;>
<!ENTITY % PID.23.ATTRIBUTES "Item CDATA #FIXED '126'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Birth Place'
Type CDATA #FIXED 'ST'">
<!ATTLIST PID.23  %PID.23.ATTRIBUTES; >
<!ENTITY % PID.28.CONTENT "%CE;">
<!ELEMENT PID.28 %PID.28.CONTENT;>
<!ENTITY % PID.28.ATTRIBUTES "Item CDATA #FIXED '739'
Table CDATA #FIXED '212'
LongName CDATA #FIXED 'Nationality'
Type CDATA #FIXED 'CE'">
<!ATTLIST PID.28  %PID.28.ATTRIBUTES; >
```

FIG. 25-G

```
<!-- Include HL7 Version 2.3.1 datatypes specification -->
<!ENTITY % HL7V231-datatypes PUBLIC "-//HL7//DTD HL7 V2.3.1 datatype
definitions//EN" "datatypes.dtd">
%HL7V231-datatypes;
<!-- Message declaration -->
<!ENTITY % ADT_A29.CONTENT "(MSH,EVN,PID)">
<!ELEMENT ADT_A29 %ADT_A29.CONTENT;>
<!-- Segment declarations -->
<!ENTITY % EVN.CONTENT "(EVN.1?,EVN.2,EVN.4?,EVN.7?)">
<!ELEMENT EVN %EVN.CONTENT;>
<!ENTITY % MSH.CONTENT "(MSH.1,MSH.2,MSH.3?,MSH.4?,MSH.5?,MSH.6?,MSH.7,MSH.8?,MSH.
9,MSH.10,MSH.11,MSH.12,MSH.13?,MSH.14?,MSH.15?,MSH.16?">
<!ELEMENT MSH %MSH.CONTENT;>
<!ENTITY % PID.CONTENT "(PID.3+,PID.5+)">
<!ELEMENT PID %PID.CONTENT;>
<!-- Field declarations -->
<!-- EVN field declarations -->
<!ELEMENT EVN.1 %EVN.1.CONTENT;>
<!ENTITY % EVN.1.ATTRIBUTES "Item CDATA #FIXED '99'
Table CDATA #FIXED '3'
LongName CDATA #FIXED 'Event Type Code'
Type CDATA #FIXED 'ID'">
<!ATTLIST EVN.1  %EVN.1.ATTRIBUTES; >
<!ENTITY % EVN.2.CONTENT "%TS;">
<!ELEMENT EVN.2 %EVN.2.CONTENT;>
<!ENTITY % EVN.2.ATTRIBUTES "Item CDATA #FIXED '100'
Table CDATA #FIXED '0'
LongName CDATA #FIXED 'Recorded Date/Time'
  Type CDATA #FIXED 'TS'">
<!ATTLIST EVN.2  %EVN.2.ATTRIBUTES; >
<!ENTITY % EVN.4.CONTENT "%IS;">
<!ELEMENT EVN.4 %EVN.4.CONTENT;>
<!ENTITY % EVN.4.ATTRIBUTES "Item CDATA #FIXED '102'
  Table CDATA #FIXED '62'
  LongName CDATA #FIXED 'Event Reason Code'
  Type CDATA #FIXED 'IS'">
<!ATTLIST EVN.4  %EVN.4.ATTRIBUTES; >
<!ENTITY % EVN.7.CONTENT "%HD;">
<!ELEMENT EVN.7 %EVN.7.CONTENT;>
<!ENTITY % EVN.7.ATTRIBUTES "Item CDATA #FIXED '1534'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED Event Facility'
  Type CDATA #FIXED 'HD'">
<!ATTLIST EVN.7  %EVN.7.ATTRIBUTES; >
<!-- MSH field declarations -->
```

FIG. 26-A

```
<!ENTITY % MSH.1.CONTENT "%ST;">
<!ELEMENT MSH.1 %MSH.1.CONTENT;>
<!ENTITY % MSH.1.ATTRIBUTES "Item CDATA #FIXED '1'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Field Separator'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.1  %MSH.1.ATTRIBUTES; >
<!ENTITY % MSH.2 .CONTENT "%ST;">
<!ELEMENT MSH.2 %MSH.2.CONTENT;>
<!ENTITY % MSH.2.ATTRIBUTES "Item CDATA #FIXED '2'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Encoding Characters'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.2  %MSH.2.ATTRIBUTES; >
<!ENTITY % MSH.3.CONTENT "%HD;">
<!ELEMENT MSH.3 %MSH.3.CONTENT;>
<!ENTITY % MSH.3.ATTRIBUTES "Item CDATA #FIXED '3'
  Table CDATA #FIXED '361'
  LongName CDATA #FIXED 'Sending Application'
  Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.3  %MSH.3.ATTRIBUTES; >
<!ENTITY % MSH.4.CONTENT "%HD;">
<!ELEMENT MSH.4 %MSH.4.CONTENT;>
<!ENTITY % MSH.4.ATTRIBUTES "Item CDATA #FIXED '4'
  Table CDATA #FIXED '362'
  LongName CDATA #FIXED 'Sending Facility'
  Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.4  %MSH.4.ATTRIBUTES; >
<!ENTITY % MSH.5.CONTENT "%HD;">
<!ELEMENT MSH.5 %MSH.5.CONTENT;>
<!ENTITY % MSH.5.ATTRIBUTES "Item CDATA #FIXED '5'
  Table CDATA #FIXED '361'
  LongName CDATA #FIXED 'Receiving Application'
  Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.5  %MSH.5.ATTRIBUTES; >
<!ENTITY % MSH.6.CONTENT "%HD;">
<!ELEMENT MSH.6 %MSH.6.CONTENT;>
<!ENTITY % MSH.6.ATTRIBUTES "Item CDATA #FIXED '6'
  Table CDATA #FIXED '362'
  LongName CDATA #FIXED 'Receiving Facility'
  Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.6  %MSH.6.ATTRIBUTES; >
<!ENTITY % MSH.7.CONTENT "%TS;">
<!ELEMENT MSH.7 %MSH.7.CONTENT;>
<!ENTITY % MSH.7.ATTRIBUTES "Item CDATA #FIXED '7'
```

FIG. 26-B

```
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Date/Time Of Message'
  Type CDATA #FIXED 'TS'">
<!ATTLIST MSH.7  %MSH.7.ATTRIBUTES; >
<!ENTITY % MSH.8.CONTENT "%ST;">
<!ELEMENT MSH.8 %MSH.8.CONTENT;>
<!ENTITY % MSH.8.ATTRIBUTES "Item CDATA #FIXED '8'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Security'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.8  %MSH.8.ATTRIBUTES; >
<!ENTITY % MSH.9.CONTENT "%CM_MSG_TYPE;">
<!ELEMENT MSH.9 %MSH.9.CONTENT;>
<!ENTITY % MSH.9.ATTRIBUTES "Item CDATA #FIXED '9'
  Table CDATA #FIXED '76'
  LongName CDATA #FIXED 'Message Type'
  Type CDATA #FIXED 'CM_MSG_TYPE'">
!ATTLIST MSH.9  %MSH.9.ATTRIBUTES; >
!ENTITY % MSH.10.CONTENT "%ST;">
!ELEMENT MSH.10 %MSH.10.CONTENT;>
!ENTITY % MSH.10.ATTRIBUTES "Item CDATA #FIXED '10'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Message Control ID'
  Type CDATA #FIXED 'ST'">
!ATTLIST MSH.10  %MSH.10.ATTRIBUTES; >
!ENTITY % MSH.11.CONTENT "%PT;">
!ELEMENT MSH.11 %MSH.11.CONTENT;>
!ENTITY % MSH.11.ATTRIBUTES "Item CDATA #FIXED '11'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Processing ID'
  Type CDATA #FIXED 'PT'">
<!ATTLIST MSH.11  %MSH.11.ATTRIBUTES; >
<!ENTITY % MSH.12.CONTENT "%VID;">
<!ELEMENT MSH.12 %MSH.12.CONTENT;>
<!ENTITY % MSH.12.ATTRIBUTES "Item CDATA #FIXED '12'
  Table CDATA #FIXED '104'
  LongName CDATA #FIXED 'Version ID'
  Type CDATA #FIXED 'VID'">
<!ATTLIST MSH.12  %MSH.12.ATTRIBUTES; >
<!ENTITY % MSH.13.CONTENT "%NM;">
<!ELEMENT MSH.13 %MSH.13.CONTENT;>
<!ENTITY % MSH.13.ATTRIBUTES "Item CDATA #FIXED '13'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Sequence Number'
  Type CDATA #FIXED 'NM'">
```

FIG. 26-C

```
<!ATTLIST MSH.13  %MSH.13.ATTRIBUTES; >
<!ENTITY % MSH.14.CONTENT "%ST;">
<!ELEMENT MSH.14 %MSH.14.CONTENT;>
<!ENTITY % MSH.14.ATTRIBUTES "Item CDATA #FIXED '14'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Continuation Pointer'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.14  %MSH.14.ATTRIBUTES; >
<!ENTITY % MSH.15.CONTENT "%ID;">
<!ELEMENT MSH.15 %MSH.15.CONTENT;>
<!ENTITY % MSH.15.ATTRIBUTES "Item CDATA #FIXED '15'
  Table CDATA #FIXED '155'
  LongName CDATA #FIXED 'Accept Acknowledgment Type'
  Type CDATA #FIXED 'ID'">
<!ATTLIST MSH.15  %MSH.15.ATTRIBUTES; >
<!ENTITY % MSH.16.CONTENT "%ID;">
<!ELEMENT MSH.16 %MSH.16.CONTENT;>
<!ENTITY % MSH.16.ATTRIBUTES "Item CDATA #FIXED '16'
  Table CDATA #FIXED '155'
  LongName CDATA #FIXED 'Application Acknowledgment Type'
  Type CDATA #FIXED 'ID'">
<!ATTLIST MSH.16  %MSH.16.ATTRIBUTES; >
<!-- PID Field declarations -->
<!ENTITY % PID.3.CONTENT "%CX;">
<!ELEMENT PID.3 %PID.3.CONTENT;>
<!ENTITY % PID.3.ATTRIBUTES "Item CDATA #FIXED '106'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Patient Identifier List'
  Type CDATA #FIXED 'CX'">
<!ATTLIST PID.3  %PID.3.ATTRIBUTES; >
<!ENTITY % PID.5.CONTENT "%XPN;">
<!ELEMENT PID.5 %PID.5.CONTENT;>
<!ENTITY % PID.5.ATTRIBUTES "Item CDATA #FIXED '108'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Patient Name'
  Type CDATA #FIXED 'XPN'">
<!ATTLIST PID.5  %PID.5.ATTRIBUTES; >
```

FIG. 26-D

```
<!-- Include HL7 Version 2.3.1 datatypes specification -->
<!ENTITY % HL7V231-datatypes PUBLIC "-//HL7//DTD HL7 V2.3.1 datatype
definitions//EN" "datatypes.dtd">
%HL7V231-datatypes;
<!-- Message declaration -->
<!ENTITY % ADT_A47.CONTENT "(MSH,EVN,PID,MRG)">
<!ELEMENT ADT_A47 %ADT_A47.CONTENT;>
<!-- Segment declarations -->
<!ENTITY % EVN.CONTENT "(EVN.1?,EVN.2,EVN.4?,EVN.7?)">
<!ELEMENT EVN %EVN.CONTENT;>
<!ENTITY % MSH.CONTENT "(MSH.1,MSH.2,MSH.3?,MSH.4?,MSH.5?,MSH.6?,MSH.7,MSH.8?,MSH.
9,MSH.10,MSH.11,MSH.12,MSH.13?,MSH.14?,MSH.15?,MSH.16?">
<!ELEMENT MSH %MSH.CONTENT;>
<!ENTITY % PID.CONTENT "(PID.3+,PID.5+,PID.6*,PID.7?,PID.8?,PID.9*,PID.10*,PID.11*
,PID.12?,PID.13*,PID.14*,PID.16?,PID.17?,PID.19?,PID.20?,PI
D.22*,PID.23?,PID.28?)">
<!ELEMENT PID %PID.CONTENT;>
<!ENTITY % MRG.CONTENT "(MRG.1+">
<!ELEMENT MRG %MRG.CONTENT;>
<!-- Field declarations -->
<!-- EVN field declarations -->
<!ELEMENT EVN.1 %EVN.1.CONTENT;>
<!ENTITY % EVN.1.ATTRIBUTES "Item CDATA #FIXED '99'
  Table CDATA #FIXED '3'
  LongName CDATA #FIXED 'Event Type Code'
  Type CDATA #FIXED 'ID'">
<!ATTLIST EVN.1  %EVN.1.ATTRIBUTES; >
<!ENTITY % EVN.2.CONTENT "%TS;">
<!ELEMENT EVN.2 %EVN.2.CONTENT;>
<!ENTITY % EVN.2.ATTRIBUTES "Item CDATA #FIXED '100'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Recorded Date/Time'
  Type CDATA #FIXED 'TS'">
<!ATTLIST EVN.2  %EVN.2.ATTRIBUTES; >
<!ENTITY % EVN.4.CONTENT "%IS;">
<!ELEMENT EVN.4 %EVN.4.CONTENT;>
<!ENTITY % EVN.4.ATTRIBUTES "Item CDATA #FIXED '102'
  Table CDATA #FIXED '62'
  LongName CDATA #FIXED 'Event Reason Code'
  Type CDATA #FIXED 'IS'">
<!ATTLIST EVN.4  %EVN.4.ATTRIBUTES; >
<!ENTITY % EVN.7.CONTENT "%HD;">
<!ELEMENT EVN.7 %EVN.7.CONTENT;>
<!ENTITY % EVN.7.ATTRIBUTES "Item CDATA #FIXED '1534'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED Event Facility'
```

FIG. 27-A

```
  Type CDATA #FIXED 'HD'">
<!ATTLIST EVN.7  %EVN.7.ATTRIBUTES; >
<!-- MRG field declarations -->
<!ENTITY % MRG.1.CONTENT "%CX;">
<!ELEMENT MRG.3 %MRG.1.CONTENT;>
<!ENTITY % MRG.1.ATTRIBUTES "Item CDATA #FIXED '211'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Prior Patient Identifier List'
  Type CDATA #FIXED 'CX'">
<!ATTLIST MRG.1  %MRG.1.ATTRIBUTES; >
<!-- MSH field declarations -->
<!ENTITY % MSH.1.CONTENT "%ST;">
<!ELEMENT MSH.1 %MSH.1.CONTENT;>
<!ENTITY % MSH.1.ATTRIBUTES "Item CDATA #FIXED '1'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Field Separator'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.1  %MSH.1.ATTRIBUTES; >
<!ENTITY % MSH.2 .CONTENT "%ST;">
<!ELEMENT MSH.2 %MSH.2.CONTENT;>
<!ENTITY % MSH.2.ATTRIBUTES "Item CDATA #FIXED '2'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Encoding Characters'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.2  %MSH.2.ATTRIBUTES; >
<!ENTITY % MSH.3.CONTENT "%HD;">
<!ELEMENT MSH.3 %MSH.3.CONTENT;>
<!ENTITY % MSH.3.ATTRIBUTES "Item CDATA #FIXED '3'
  Table CDATA #FIXED '361'
  LongName CDATA #FIXED 'Sending Application'
  Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.3  %MSH.3.ATTRIBUTES; >
<!ENTITY % MSH.4.CONTENT "%HD;">
<!ELEMENT MSH.4 %MSH.4.CONTENT;>
<!ENTITY % MSH.4.ATTRIBUTES "Item CDATA #FIXED '4'
  Table CDATA #FIXED '362'
  LongName CDATA #FIXED 'Sending Facility'
  Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.4  %MSH.4.ATTRIBUTES; >
<!ENTITY % MSH.5.CONTENT "%HD;">
<!ELEMENT MSH.5 %MSH.5.CONTENT;>
<!ENTITY % MSH.5.ATTRIBUTES "Item CDATA #FIXED '5'
  Table CDATA #FIXED '361'
  LongName CDATA #FIXED 'Receiving Application'
  Type CDATA #FIXED 'HD'">
```

FIG. 27-B

```
<!ATTLIST MSH.5  %MSH.5.ATTRIBUTES; >
<!ENTITY % MSH.6.CONTENT "%HD;">
<!ELEMENT MSH.6 %MSH.6.CONTENT;>
<!ENTITY % MSH.6.ATTRIBUTES "Item CDATA #FIXED '6'
  Table CDATA #FIXED '362'
  LongName CDATA #FIXED 'Receiving Facility'
  Type CDATA #FIXED 'HD'">
<!ATTLIST MSH.6  %MSH.6.ATTRIBUTES; >
<!ENTITY % MSH.7.CONTENT "%TS;">
<!ELEMENT MSH.7 %MSH.7.CONTENT;>
<!ENTITY % MSH.7.ATTRIBUTES "Item CDATA #FIXED '7'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Date/Time Of Message'
  Type CDATA #FIXED 'TS'">
<!ATTLIST MSH.7  %MSH.7.ATTRIBUTES; >
<!ENTITY % MSH.8.CONTENT "%ST;">
<!ELEMENT MSH.8 %MSH.8.CONTENT;>
<!ENTITY % MSH.8.ATTRIBUTES "Item CDATA #FIXED '8'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Security'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.8  %MSH.8.ATTRIBUTES; >
<!ENTITY % MSH.9.CONTENT "%CM_MSG_TYPE;">
<!ELEMENT MSH.9 %MSH.9.CONTENT;>
<!ENTITY % MSH.9.ATTRIBUTES "Item CDATA #FIXED '9'
  Table CDATA #FIXED '76'
  LongName CDATA #FIXED 'Message Type'
  Type CDATA #FIXED 'CM_MSG_TYPE'">
<!ATTLIST MSH.9  %MSH.9.ATTRIBUTES; >
<!ENTITY % MSH.10.CONTENT "%ST;">
<!ELEMENT MSH.10 %MSH.10.CONTENT;>
<!ENTITY % MSH.10.ATTRIBUTES "Item CDATA #FIXED '10'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Message Control ID'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.10  %MSH.10.ATTRIBUTES; >
<!ENTITY % MSH.11.CONTENT "%PT;">
<!ELEMENT MSH.11 %MSH.11.CONTENT;>
<!ENTITY % MSH.11.ATTRIBUTES "Item CDATA #FIXED '11'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Processing ID'
  Type CDATA #FIXED 'PT'">
<!ATTLIST MSH.11  %MSH.11.ATTRIBUTES; >
<!ENTITY % MSH.12.CONTENT "%VID;">
<!ELEMENT MSH.12 %MSH.12.CONTENT;>
```

FIG. 27-C

```
<!ENTITY % MSH.12.ATTRIBUTES "Item CDATA #FIXED '12'
  Table CDATA #FIXED '104'
  LongName CDATA #FIXED 'Version ID'
  Type CDATA #FIXED 'VID'">
<!ATTLIST MSH.12  %MSH.12.ATTRIBUTES; >
<!ENTITY % MSH.13.CONTENT "%NM;">
<!ELEMENT MSH.13 %MSH.13.CONTENT;>
<!ENTITY % MSH.13.ATTRIBUTES "Item CDATA #FIXED '13'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Sequence Number'
  Type CDATA #FIXED 'NM'">
<!ATTLIST MSH.13  %MSH.13.ATTRIBUTES; >
<!ENTITY % MSH.14.CONTENT "%ST;">
<!ELEMENT MSH.14 %MSH.14.CONTENT;>
<!ENTITY % MSH.14.ATTRIBUTES "Item CDATA #FIXED '14'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Continuation Pointer'
  Type CDATA #FIXED 'ST'">
<!ATTLIST MSH.14  %MSH.14.ATTRIBUTES; >
<!ENTITY % MSH.15.CONTENT "%ID;">
<!ELEMENT MSH.15 %MSH.15.CONTENT;>
<!ENTITY % MSH.15.ATTRIBUTES "Item CDATA #FIXED '15'
  Table CDATA #FIXED '155'
  LongName CDATA #FIXED 'Accept Acknowledgment Type'
  Type CDATA #FIXED 'ID'">
<!ATTLIST MSH.15  %MSH.15.ATTRIBUTES; >
<!ENTITY % MSH.16.CONTENT "%ID;">
<!ELEMENT MSH.16 %MSH.16.CONTENT;>
<!ENTITY % MSH.16.ATTRIBUTES "Item CDATA #FIXED '16'
  Table CDATA #FIXED '155'
  LongName CDATA #FIXED 'Application Acknowledgment Type'
  Type CDATA #FIXED 'ID'">
<!ATTLIST MSH.16  %MSH.16.ATTRIBUTES; >
<!-- PID Field declarations -->
<!ENTITY % PID.3.CONTENT "%CX;">
<!ELEMENT PID.3 %PID.3.CONTENT;>
<!ENTITY % PID.3.ATTRIBUTES "Item CDATA #FIXED '106'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Patient Identifier List'
  Type CDATA #FIXED 'CX'">
<!ATTLIST PID.3  %PID.3.ATTRIBUTES; >
<!ENTITY % PID.5.CONTENT "%XPN;">
<!ELEMENT PID.5 %PID.5.CONTENT;>
<!ENTITY % PID.5.ATTRIBUTES "Item CDATA #FIXED '108'
  Table CDATA #FIXED '0'
```

FIG. 27-D

```
    LongName CDATA #FIXED 'Patient Name'
    Type CDATA #FIXED 'XPN'">
  <!ATTLIST PID.5  %PID.5.ATTRIBUTES; >
  <!ENTITY % PID.6.CONTENT "%XPN;">
  <!ELEMENT PID.6 %PID.6.CONTENT;>
  <!ENTITY % PID.6.ATTRIBUTES "Item CDATA #FIXED '109'
    Table CDATA #FIXED '0'
    LongName CDATA #FIXED 'Mother&apos;s Maiden Name'
    Type CDATA #FIXED 'XPN'">
  <!ATTLIST PID.6  %PID.6.ATTRIBUTES; >
  <!ENTITY % PID.7.CONTENT "%TS;">
  <!ELEMENT PID.7 %PID.7.CONTENT;>
  <!ENTITY % PID.7.ATTRIBUTES "Item CDATA #FIXED '110'
    Table CDATA #FIXED '0'
    LongName CDATA #FIXED 'Date/Time Of Birth'
    Type CDATA #FIXED 'TS'">
  <!ATTLIST PID.7  %PID.7.ATTRIBUTES; >
  <!ENTITY % PID.8.CONTENT "%IS;">
  <!ELEMENT PID.8 %PID.8.CONTENT;>
  <!ENTITY % PID.8.ATTRIBUTES "Item CDATA #FIXED '111'
    Table CDATA #FIXED '1'
    LongName CDATA #FIXED 'Administrative Sex'
    Type CDATA #FIXED 'IS'">
  <!ATTLIST PID.8  %PID.8.ATTRIBUTES; >
  <!ENTITY % PID.9.CONTENT "%XPN;">
  <!ELEMENT PID.9 %PID.9.CONTENT;>
  <!ENTITY % PID.9.ATTRIBUTES "Item CDATA #FIXED '112'
    Table CDATA #FIXED '0'
    LongName CDATA #FIXED 'Patient Alias'
    Type CDATA #FIXED 'XPN'">
  <!ATTLIST PID.9  %PID.9.ATTRIBUTES; >
  <!ENTITY % PID.10.CONTENT "%CE;">
  <!ELEMENT PID.10 %PID.10.CONTENT;>
  <!ENTITY % PID.10.ATTRIBUTES "Item CDATA #FIXED '113'
    Table CDATA #FIXED '5'
    LongName CDATA #FIXED 'Race'
    Type CDATA #FIXED 'CE'">
  <!ATTLIST PID.10  %PID.10.ATTRIBUTES; >
  <!ENTITY % PID.11.CONTENT "%XAD;">
  <!ELEMENT PID.11 %PID.11.CONTENT;>
  <!ENTITY % PID.11.ATTRIBUTES "Item CDATA #FIXED '114'
    Table CDATA #FIXED '0'
    LongName CDATA #FIXED 'Patient Address'
    Type CDATA #FIXED 'XAD'">
  <!ATTLIST PID.11  %PID.11.ATTRIBUTES; >
```

FIG. 27-E

```
<!ENTITY % PID.12.CONTENT "%IS;">
<!ELEMENT PID.12 %PID.12.CONTENT;>
<!ENTITY % PID.12.ATTRIBUTES "Item CDATA #FIXED '115'
  Table CDATA #FIXED '289'
  LongName CDATA #FIXED 'County Code'
  Type CDATA #FIXED 'IS'">
<!ATTLIST PID.12  %PID.12.ATTRIBUTES; >
<!ENTITY % PID.13.CONTENT "%XTN;">
<!ELEMENT PID.13 %PID.13.CONTENT;>
<!ENTITY % PID.13.ATTRIBUTES "Item CDATA #FIXED '116'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Phone Number - Home'
  Type CDATA #FIXED 'XTN'">
<!ATTLIST PID.13  %PID.13.ATTRIBUTES; >
<!ENTITY % PID.14.CONTENT "%XTN;">
<!ELEMENT PID.14 %PID.14.CONTENT;>
<!ENTITY % PID.14.ATTRIBUTES "Item CDATA #FIXED '117'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Phone Number - Business'
  Type CDATA #FIXED 'XTN'">
<!ATTLIST PID.14  %PID.14.ATTRIBUTES; >
<!ENTITY % PID.16.CONTENT "%CE;">
<!ELEMENT PID.16 %PID.16.CONTENT;>
<!ENTITY % PID.16.ATTRIBUTES "Item CDATA #FIXED '119'
  Table CDATA #FIXED '2'
  LongName CDATA #FIXED 'Marital Status'
  Type CDATA #FIXED 'CE'">
<!ATTLIST PID.16  %PID.16.ATTRIBUTES; >
<!ENTITY % PID.17.CONTENT "%CE;">
<!ELEMENT PID.17 %PID.17.CONTENT;>
<!ENTITY % PID.17.ATTRIBUTES "Item CDATA #FIXED '120'
  Table CDATA #FIXED '6'
  LongName CDATA #FIXED 'Religion'
  Type CDATA #FIXED 'CE'">
<!ATTLIST PID.17  %PID.17.ATTRIBUTES; >
<!ENTITY % PID.19.CONTENT "%ST;">
<!ELEMENT PID.19 %PID.19.CONTENT;>
<!ENTITY % PID.19.ATTRIBUTES "Item CDATA #FIXED '122'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'SSN Number - Patient'
  Type CDATA #FIXED 'ST'">
<!ATTLIST PID.19  %PID.19.ATTRIBUTES; >
<!ENTITY % PID.20.CONTENT "%DLN;">
<!ELEMENT PID.20 %PID.20.CONTENT;>
<!ENTITY % PID.20.ATTRIBUTES "Item CDATA #FIXED '123'
```

FIG. 27-F

```
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Driver&apos;s License Number - Patient'
  Type CDATA #FIXED 'DLN'">
<!ATTLIST PID.20  %PID.20.ATTRIBUTES; >
<!ENTITY % PID.22.CONTENT "%CE;">
<!ELEMENT PID.22 %PID.22.CONTENT;>
<!ENTITY % PID.22.ATTRIBUTES "Item CDATA #FIXED '125'
  Table CDATA #FIXED '189'
  LongName CDATA #FIXED 'Ethnic Group'
  Type CDATA #FIXED 'CE'">
<!ATTLIST PID.22  %PID.22.ATTRIBUTES; >
<!ENTITY % PID.23.CONTENT "%ST;">
<!ELEMENT PID.23 %PID.23.CONTENT;>
<!ENTITY % PID.23.ATTRIBUTES "Item CDATA #FIXED '126'
  Table CDATA #FIXED '0'
  LongName CDATA #FIXED 'Birth Place'
  Type CDATA #FIXED 'ST'">
<!ATTLIST PID.23  %PID.23.ATTRIBUTES; >
<!ENTITY % PID.28.CONTENT "%CE;">
<!ELEMENT PID.28 %PID.28.CONTENT;>
<!ENTITY % PID.28.ATTRIBUTES "Item CDATA #FIXED '739'
  Table CDATA #FIXED '212'
  LongName CDATA #FIXED 'Nationality'
  Type CDATA #FIXED 'CE'">
<!ATTLIST PID.28  %PID.28.ATTRIBUTES; >
```

FIG. 27-G

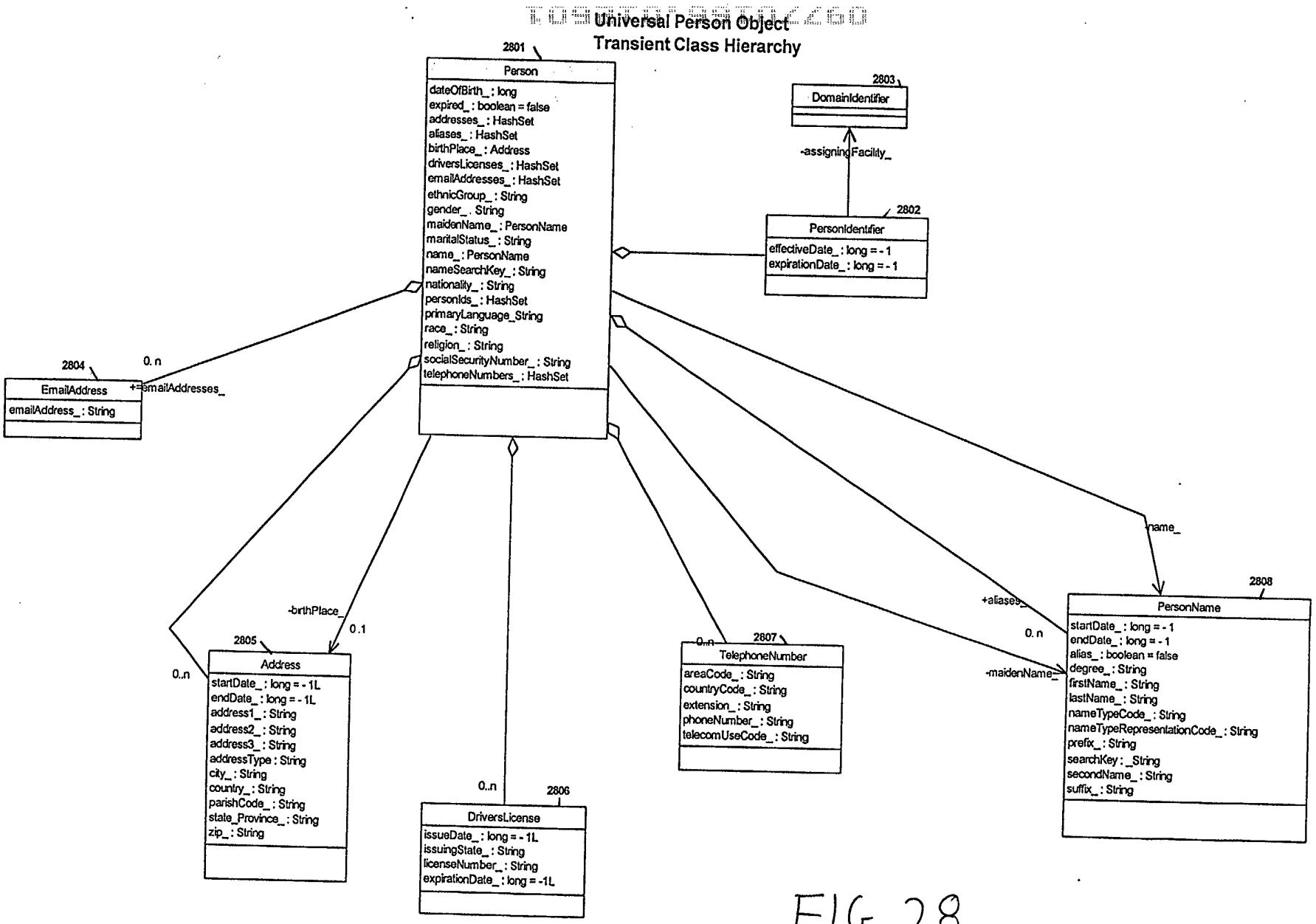
Universal Person Object
Transient Class Hierarchy
2801
Person
dateOfBirth_: long
expired_: boolean = false
addresses_: HashSet
aliases_: HashSet
birthPlace_: Address
driversLicenses_: HashSet
emailAddresses_: HashSet
ethnicGroup_: String
gender_: String
maidenName_: PersonName
maritalStatus_: String
name_: PersonName
nameSearchKey_: String
nationality_: String
personIds_: HashSet
primaryLanguage_String
race_: String
religion_: String
socialSecurityNumber_: String
telephoneNumbers_: HashSet
2803
DomainIdentifier
-assigningFacility_
2802
PersonIdentifier
effectiveDate_: long = -1
expirationDate_: long = -1
2804
EmailAddress
emailAddress_: String
0..n
+emailAddresses_
-birthPlace_
0..1
2805
Address
startDate_: long = -1L
endDate_: long = -1L
address1_: String
address2_: String
address3_: String
addressType: String
city_: String
country_: String
parishCode_: String
state_Province_: String
zip_: String
0..n
2806
DriversLicense
issueDate_: long = -1L
issuingState_: String
licenseNumber_: String
expirationDate_: long = -1L
0..n
2807
TelephoneNumber
areaCode_: String
countryCode_: String
extension_: String
phoneNumber_: String
telecomUseCode_: String
name_
+aliases_
0..n
-maidenName_
2808
PersonName
startDate_: long = -1
endDate_: long = -1
alias_: boolean = false
degree_: String
firstName_: String
lastName_: String
nameTypeCode_: String
nameTypeRepresentationCode_: String
prefix_: String
searchKey: _String
secondName_: String
suffix_: String

FIG. 28

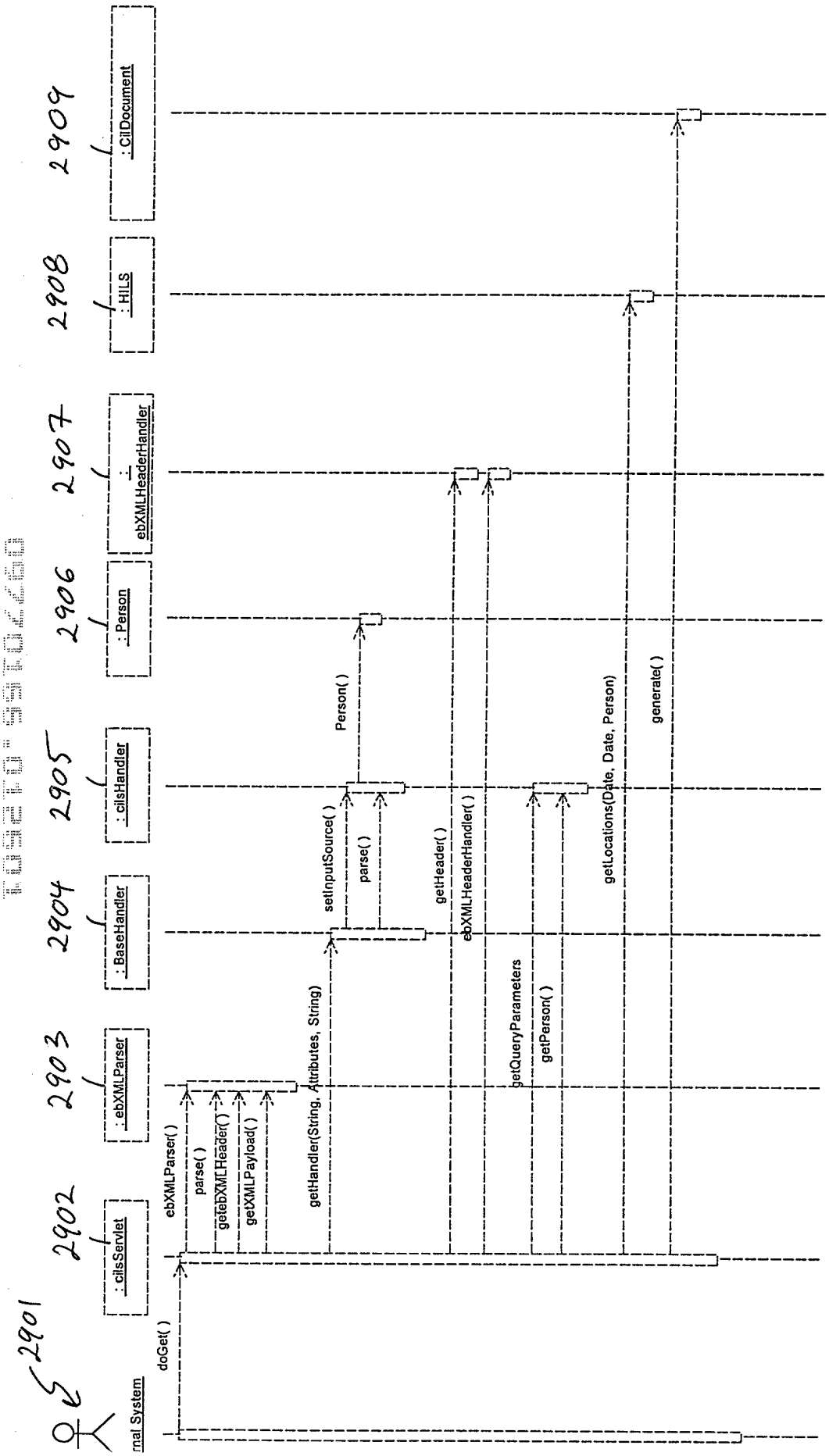
2901
rnal System
2902
: cilsServlet
2903
: ebXMLParser
2904
: BaseHandler
2905
: cilsHandler
2906
: Person
2907
: ebXMLHeaderHandler
2908
: HILS
2909
: CilDocument
doGet( )
ebXMLParser( )
parse( )
getebXMLHeader( )
getXMLPayload( )
getHandler(String, Attributes, String)
setInputSource( )
parse( )
Person( )
getHeader( )
ebXMLHeaderHandler( )
getQueryParameters
getPerson( )
getLocations(Date, Date, Person)
generate( )

FIG. 29

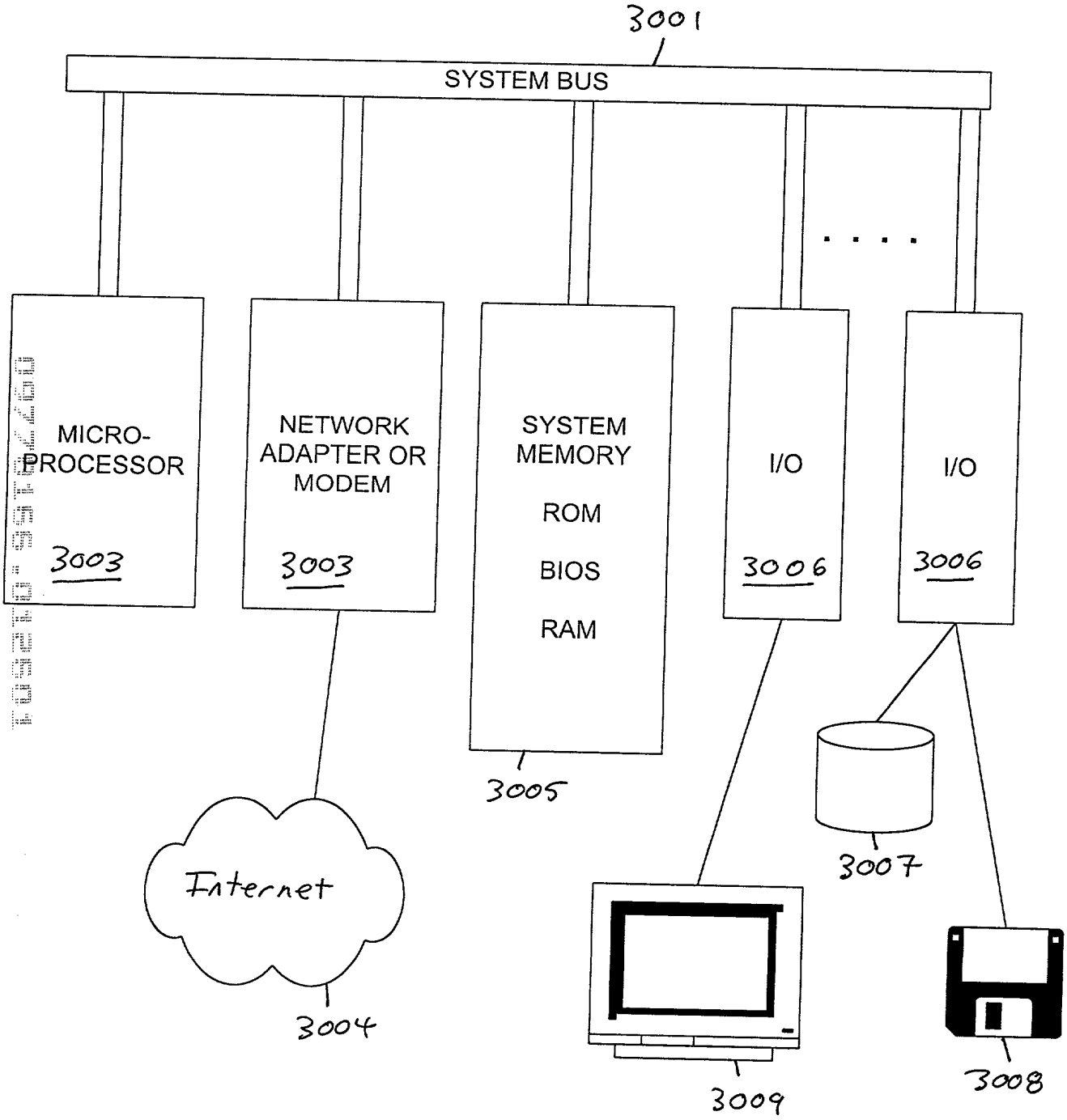
3001
SYSTEM BUS
MICRO-PROCESSOR
3003
NETWORK ADAPTER OR MODEM
3003
SYSTEM MEMORY
ROM
BIOS
RAM
3005
I/O
3006
I/O
3006
3007
Internet
3004
3009
3008

FIG. 30